THE DEVELOPMENT AND STANDARDIZATION OF AN ACHIEVEMENT TEST FOR USE IN MUSIC EDUCATION AT THE GRADUATE LEVEL

by

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THE PROBLEM

Introduction to the problem of graduate entrance examinations.

In this new era for higher education in America, colleges and universities everywhere are faced with the tremendous task of providing opportunities for post high school study for hundreds of thousands of men and women in a great variety of fields and interests. The task is complicated by the determination of these hundreds of advanced institutions to present a type of learning which is commensurate with the traditions and ideals of their history of many years, despite the critical strain upon facilities and staffs. Because of this strain on facilities, in most cases there is a need for some plan or method of selection among the applicants for a higher education, and this need reaches directly into the level of graduate education.

A review of college enrollment statistics for the postwar years indicates the trends which are manifest in the influx upon institutions of higher learning. The annual surveys of American universities and colleges made by Raymond Walters of the University of Cincinnati furnish proof of the overflowing conditions which exist:[1]

> "A new era has begun for American higher education. In this particular postwar autumn of 1946, record-breaking enrollments of 1,331,138 full time students, including 714,477 veterans are reported by 668 approved universities and four year colleges throughout the United States, with an additional 350,000, including 150,000 veterans estimated for 650 junior colleges. Beyond these there are several hundred other institutions not

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1. Walters, Raymond, "Statistics of Attendance in American Universities and Colleges, 1946", SCHOOL AND SOCIETY 64:428-38, 1946.

> on the SCHOOL AND SOCIETY lists that would bring the national total to well over two million students, of whom over half are veterans."

Institutions of all types are crowded literally to the walls of their classrooms, laboratories, and dormatories, and have brought into service all sorts of barracks, portable houses, and local school buildings. By cooperative action within states, universities and colleges are accommodating in some fashion the tremendous influx of veterans.

> "The 1946 fulltime totals are approximately 57% above the autumn figures of the last peacetime year, 1939. The 1945 total was 2.8% below that of 1939."

In his 1947 report, Dr. Walters presented these findings:[2]

> "With a grand total this fall of 1,149,933 veterans attending the U. S. institutions of higher learning, the GI tide has apparently reached its peak. At 716 universities surveyed, there were 1,592,389 full time students and 585,868 part time students for 1947. In 1,753 institutions above the high school level there were 2,338,226 'resident students'. These 1947 enrollments surpass last year's previous peak record. For 620 of the approved universities and four year colleges supplying comparable data for both years, the increase over 1946 is 9.7% in respect to full time students and 18.8% in respect to part time students. The latter include persons attending summer sessions not duplicated in the fall enrollment. For the 983 universities, colleges and professional schools in the U. S. Office of Education Survey, the increase over 1946 is just under 12 percent for resident students, not differentiated as to full time and part time, and not including summer attendance; for all 1,753 institutions, the increase is 12.5%."

In November of 1948, Dr. Walters indicated that returns from 367 accredited institutions showed that the all time 1947 peak was being maintained in the fall of 1948.[3] Many institutions curtailed enrollments

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2. Walters, Raymond, "Statistics of Attendance in American Universities and Colleges, 1947", SCHOOL AND SOCIETY 66:488-98, 1947.
3. Walters, Raymond, "GI Enrollments in Colleges and Universities", SCHOOL AND SOCIETY 68:317, 1948.

in order to prevent overcrowded conditions and to make it possible for their staffs to maintain higher standards of instruction.

In his annual report for 1948, Dr. Walters said that college enrollments were still on the increase, but that a lull had started.[4] Fulltime enrollments in 726 colleges and universities were only nineteenths of one percent greater than in 1947, and there was a 4.5 percent increase in part time student enrollments.

There were 1,580,783 students enrolled on a full time basis in the 726 institutions and 351,196 enrolled for part time work. World War veterans, who make up 40 per cent of the enrollment are the students maintaining the current enrollment levels. There were ten per cent fewer freshmen. It is significant that the veterans made up fifty per cent of the 1947 enrollment, but only forty per cent of the 1948 enrollment, although the totals remained at a high level.

Robert Story, in an article for HIGHER EDUCATION in 1948 reveals the increase in degrees conferred by American colleges and universities for the 1947-48 school year in contrast with those of pre-war years:[5]

> "Unprecedented enrollments in United States colleges and universities during the fall of 1947 were matched by an unprecedented number of degrees conferred during the year 1947-1948. Approximately 314,000 degrees were conferred during this period; this exceeded the previous record (set in 1939-40) by almost 100,000. In 1947-48 there were 42,023 master's and second professional degrees in contrast to 26,731 in the 1939-40 record period. This was an increase of 57.2 per cent. There were 4,179 Doctor's degrees awarded as compared with 3,497 in 1941-42, the period of previous record. This was an increase of 19.5 percent."

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4. Walters, Raymond, "Statistics of Attendance in American Universities and Colleges, 1948", SCHOOL AND SOCIETY 68:419-430, 1948.
5. Story, Robert C., "Earned Degrees Conferred by Institutions of Higher Education, 1947-48", HIGHER EDUCATION 5:79-80, 1948.

Of particular interest to this study is this section of the breakdown of Story's figures on degrees conferred:

TABLE I

Music and Education Degrees Conferred by American Colleges and Universities in 1947-48

	BACHELOR'S DEGREES		
1947-48	TOTAL	MEN	WOMEN
Music	5,217	1,735	3,482
Education	29,550	8,315	21,235
	MASTER'S DEGREES		
	TOTAL	MEN	WOMEN
Music	1,039	628	411
Education	11,772	6,603	5,169
	DOCTOR'S DEGREES		
	TOTAL	MEN	WOMEN
Music	27	22	5
Education	464	386	78

Facts and figures on current college enrollments are not a trade secret. They represent an item of general interest to the people of America as a whole, for the future of any country today is inevitably tied up with its educational facilities. Extracts from articles such as this one, taken from an issue of U. S. NEWS point up the problem to every person:[6]

> "The rush to go to college is more of a scramble this year (1947) than last. Students will find college campuses in September more crowded than ever before. Demand for higher education was never so great. Colleges expect a record breaking registration of about 2,750,000 students in the 1947-48 season. The students who manages to get in any

6. Article, "The Record Rush to College", US NEWS, 23:Aug 29, 1947, pp. 22-23.

> college at all is counted as lucky. All the larger universities have turned down thousands of applicants....waiting lists for 1948 are already started....entrance requirements are strict....the average applicant not accepted by August is out of luck until next term. Minnesota turned down 13,700 (applicants) last year."

Educators freely warn that classes now are too large for instruction of normal quality. Competition for scholastic standing is keen. Veterans, older and more serious, seem to be setting the pace. Colleges are adopting constantly higher standards for entry to advanced technical and graduate schools. This trend toward greater enrollments in the colleges and universities is found in the graduate schools of those institutions as well as in their undergraduate programs. Harold Stoke, in an article, "The Future of Graduate Education" points this fact up clearly.[7]

> "Virtually all children between six and fourteen, and almost three fourths of those between fourteen and seventeen are now given some kind of educational opportunities. These opportunities are being extended downward to younger children and upward to include technical and collegiate education and adult education as well."

> "With state and municipal universities supplying educational facilities at steadily lowering costs, it would seem only a short step to the principle that anyone who demonstrates interest and aptitude for education will have it provided at public expense to the extent that he may desire. While the chief purpose of the graduate school is to give training to the teacher, the research worker, and the scholar, it seeks, by the nature of the training it gives, to enable the student to advance knowledge and not merely to receive and transmit it. In 1870 there were 44 graduate students in the United States; in 1940 there were eighty thousand. Such figures tell a story more eloquently than words. They mean that the scholarly ideals of the graduate schools were tempered and diluted by the presence of thousands of people whose interests were not those of scholarship, but of marketable professional status."

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7. Stoke, Harold W., "The Future of Graduate Education", JOURNAL OF HIGHER EDUCATION 18:473-7, 1947.

Joseph Vasche points up this propensity for higher degrees, due to their more material values in a startling article called "$100 Doctors".[8] This is an interesting disclosure of the activities of several 'degree-granting' organizations, via the mail order route. Higher degrees may be obtained for from $100 to $300 or more. Chartered under state provisions, nevertheless, these schools are not listed members of the National Home Study Council, and their actual addresses are uncertain. They offer such degrees as 'Doctor of Psychology (PS.D.)', 'Doctor of Metaphysics (Ms.D.)', or 'Doctor of Universal Truth (U.T.D.)' in addition to the regular master's and doctor's degrees in education and philosophy.

One factor which has increased the demand for graduate education in the teaching field is related to the above problem of material interests. It is the current method of many cities and even states of adjusting teachers salaries on the basis, wholly or partly of educational credits, especially on the post-graduate level. This has come about as a consequence of recent increases in the salaries paid to teachers throughout the country--itself the product of a long and continuing battle on the part of educators and far-sighted citizens alike to bring the status of the school teacher alongside that of other professions of importance in the community. With the consent of the people for these increases has come, however, a demand for better teachers.

> "The best of public opinion will favor paying good teachers good salaries, but it will not favor paying good salaries to teachers who obviously do not carry on their work with energy, skill and enthusiasm."[9]

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8. Vasche, Joseph Burton, "$100 Doctors", CLEARING HOUSE, 15:159-61, 1940.
9. Miller, Carl G., "Good Instruction, Good Salaries", EDUCATION 67:459, 1947.

> "Across the nation, resulting from the rightful demands of teachers we have seen rise a counter demand for some type of merit rating to accompany salary increases. The general line of thinking seems to run, 'If teachers are going to be paid more money, we have a right to demand a higher type of teacher'. The sad fact is that we are not paying teachers any more than we did before. Nonetheless, the demand for merit rating is widespread throughout the country today."[10]

There is a great deal of controversy over the merits of such a system which bases salaries on educational preparedness and other personal characteristics or attributes of the individual teacher, but the fact remains that since such a practice is becoming more common each year, there is a greater rush on the part of teachers in service and those preparing for teaching as a profession to apply for admission to graduate courses and to request candidacy for higher degrees.

The teacher's salary law adopted by the New York legislature in 1947 provides for increments based on a number of different factors, including the acquisition of credits or degrees beyond the level of the master's degree.[11]

> "The typical salary schedule for teachers today classifies salaries on the basis of the individual teacher's professional preparation, whether the teaching assignment is in elementary or secondary schools. This is the 'single salary' or 'preparation' schedule. In the NEA survey 120, or 71% of the schedules are of this type. All 120 provide salary classes for the bachelor's degree, and the master's degree. Twenty-four schedules provide a class for six years of preparation, and twelve recognize the doctor's degree."[12]

In the state of South Carolina the state schedule classifies salaries according to preparation, and subdivides them further according to the

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10. Ball, Lester B., "Should Merit Ratings Determine Salaries?" SCHOOL EXECUTIVE 67:no. 9, March 1948, pp. 46-48.
11. Spaulding, Francis T., "Teacher-Rating and Salaries", PHI DELTA KAPPAN 29:197-206, 1947.
12. Davis, Hazel, "Factors Determining Teachers Salaries", SCHOOL EXECUTIVE 66:58-59, 1947.

teacher's rank on the National Teacher Examination. Another plan is to classify salaries according to the ranking by the regional accrediting association of the colleges awarding various degrees to teachers. Requirements for continued professional preparation are used in many schedules as conditions for progressing from minimum to maximum or for service increments beyond the maximum reached by automatic annual increments.

In Florida there is a state-apportioning schedule, rather than a minimum salary schedule for teachers.

> "According to this plan, instructional units per county, both elementary and secondary, are classified according to the training of teachers and other members of the instructional staff employed during the current year. The percentage of units represented by teachers with less than two years of training is multiplied by only $1,000; the percentage of units represented with teachers with two years of training by $1,400; those with three years of training by $1,600; those with certificates based on four years of training at $2,550; those with certificates based on five years of training by $3,000; and those with certificates based on six years of training by $3,600. Each county is required to develop its own salary schedule, but the average of salaries paid for teachers in each of these classifications must be at least equal to the average used in the state-apportioning schedule. Most counties actually have a higher average. Thus, there is a very strong incentive for counties to employ better qualified teachers and for teachers to improve their training."[13]

The amount included in the minimum program of salaries for any local school administrative unit is found by multiplying the number of instructional units represented by the percentage of instructional employees who are college graduates, by the amount set up for college graduates. The average of the local schedule must be at least equal to the amount assured by the state.[14]

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13. Morphet, Edgar L., "Florida Moves Ahead", SCHOOL AND SOCIETY 67:69-71, 1948.
14. Morphet, Edgar L., "State Responsibility for Salaries", SCHOOL EXECUTIVE 67:no. 6, pp. 31-33, February, 1948.

The implications of these salary schedules for the graduate schools of education are obvious. They represent, first of all, an increase in enrollment, and secondly they represent a factor which is of immediate concern to college and university educators--the application of many teachers for graduate work when they might otherwise not be qualified for such a pursuit.

Dr. Lee Jenkins points out that too many teachers take graduate courses just to fulfill the requirements of salary schedules.[15]

> "A paramount disturbing factor that may prove injurious to graduate work in education is the present method of evaluating teachers both as to competence and salary. Many board of education classify teachers on the basis of graduate courses completed, which frequently results in an influx of disinterested people in the graduate schools."

Herbert Gooden adds to this:[16]

> "Some post graduate students frankly admit that besides taking courses because of interest or the requirements of their boards of education, they do it because they would not do the suggested reading and thinking. Stimulating contacts with other teachers are found in the post-graduate class or seminar, too. New friends can be made easily."

While merit systems in education are in their infancy and extremely difficult to administer, it is likely that in the future promotions will be made on the basis of demonstrated proficiency and intellectual achievement. If teachers are to be paid more, more will be demanded of them. Some school boards are already saying that if they are going to pay higher salaries, they must insist on higher standards of professional ability before awarding tenure. Some are establishing service requirements. There may be less

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15. Jenkins, Lee W., "Master Teachers: a Program of Graduate Study", CLEARING HOUSE 23:no. 1, pp. 9-11. September, 1948.
16. Gooden, Herbert B., "Graduate Study: Courses, Yes! Degrees, Maybe!", CLEARING HOUSE 22:465-7, 1947-48.

tendency for promotions and salary increases to be automatic. The teacher who boasts that he hasn't taken a course for fifteen years will not have a chance against the alert and professionally-minded teacher in the future. Teaching is becoming more than an occupation; it is approaching a professional status because its standards are increasing.

The problem of entrance requirements for graduate schools is not new. It is true that there are more applicants now than ever before, and the pressure for admission is constantly increasing. In 1938, Robert A. Davis outlined the situation at the University of Colorado in a published article:[17]

> "Together with many other institutions the University of Colorado in recent years has faced the problem of providing adequate graduate-study programs and guidance for the master's degree in education. The situation that has arisen in almost all American universities has strained almost to the breaking point the limited facilities for graduate instruction, and has led in nearly all instances to some modification in administrative and instructional organization and policy. Some instructors have solved the problem from the administrative viewpoint, at least, by reducing the requirements for the masters degree to the satisfactory completion of a stipulated quantity of academic credits. Emphasis on specialization in many cases has weakened; considerable leniency is shown the students who wish to fulfill the requirements by offering a preposterous array of unrelated and uncoordinated courses. Deterioration is less pronounced in some institutions where the degree is granted on the basis of course requirements and a comprehensive written or oral examination. Other institutions have maintained the traditional requirements except for permitting a report to be substituted for a thesis."

The first task of the graduate student is to accustom himself to working independently and assuming greater responsibility for securing and developing information. He must be introduced, at least, to the rudiments of research method, and learn where and how to obtain educational data and how to deal with them when he has them. He must learn to exercise critical

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17. Davis, Robert A., "Guidance of Graduate Students", JOURNAL OF HIGHER EDUCATION 9:365-70, 1938.

judgment and attain maturity of thought, instead of accepting in the manner of the undergraduate the word of the textbook or the lecturer. He must be his own critic in deciding what he will believe and he must become more fully appreciative of intellectual values. His second problem is to give evidence in the form of a thesis that he is competent to carry on a certain amount of independent research to completion, obtaining source materials, organizing them properly, and presenting sound interpretations and implications. His third objective is the ability to deal with related information in the field, and he is asked to demonstrate by oral or written examination that his study has been extensive as well as intensive, that it has been purposeful and meaningful, and that it has endowed him with a reasonable understanding of the relationships among his different fields.

This discussion clearly highlights the tremendous obligations imposed upon the prospective candidate in the graduate school of education, and indicates the necessity for some differentiation in relative abilities, potentialities, and aptitudes for carrying out a program of study at the graduate level.

I. L. Kandel has this to say about the Ph. D. degree, specifically:[18]

> "The fundamental issue that presents itself in a consideration of the status of the Ph.D. degree is whether it serves the purpose for which it was originally established. This purpose was to train students in the methods of research and the advancement of knowledge. In practice, because of requirements established by a variety of accrediting bodies, the Ph.D. has come to be looked upon as a prerequisite for appointment to teaching positions in colleges and universities, to certain administrative positions in education, and even for secondary school teaching positions. The results have been the multi-

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18. Kandel, I. L., "The Ph. D. Degree", JOURNAL OF HIGHER EDUCATION 10:233-36, 1939.

> plication of graduate schools not only in the universities, but also in teacher's colleges, and such an increase in the number of candidates for the degree that its attainment has been reduced to a mechanical process, defined as all education in the United States is defined, in quantitative terms of courses and credits plus the addition of a thesis."

> "The American universities, like the American colleges are confronted with the problem of numbers; the probability is that a policy of rigid selection and exclusion is impossible, if not, indeed, unsound. But from these numbers, there should, after a certain stage has been reached, be a choice of the best who can profit most from continued education. A process of selection, however, cannot be adopted without some understanding of standards both at the beginning and at the end of the process."

The opinions of noted educators and men of science and letters serve to highlight the concern which is felt by those who hold the responsibility for administering graduate education to the large numbers of applicants in the schools of higher education today. Carl Seashore, University of Iowa, relates the plans in effect at this large state institution:[19]

> "As compared with other levels of American education, the graduate school is probably destined for the largest proportional increase, both in the scope of operation and in the registration of students. Entrance in the graduate school may be in one of these three plans: The STANDARD plan, specifically designed for the maintenance of liberal and rigorous standards, leading to the traditional advanced degree; the TERMINAL plan, providing for specially designed terminal schedules leading to the master's degree; and the FREE-ELECTIVE plan, not leading to any degree."

Current trends in adult education, with the rapid increase of mass demands for education make it necessary to admit students tentatively to the graduate school, and then apply a systematic sorting technique as early as

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19. Seashore, Carl E., "Three-Way Organization in the Graduate School", JOURNAL OF HIGHER EDUCATION 15:367-78, 1944.

possible to distinguish those who should be admitted to candidacy for the standard degree from those who should register for a terminal degree or for free electives.

> "Just as the attempt to make a scholar out of every student entering the liberal arts college has failed, so the attempt to nurse all graduate students toward a higher degree is an ill-advised policy resulting in the lowering of standards....the time has come for the more adequate evaluation, sorting, and routing of the students at or near his first registration. To facilitate and implement the sorting adequately, the threefold choice of routing is devised."

> "The graduate record examination, used at the University of Iowa, or its equivalent, in its two forms, the general profile examination and the special examination in an area, should be required of each graduate student desiring to become a candidate for a degree, and he should take the examination the first time it is offered after he registers in the graduate school, unless he presents a record of having taken it elsewhere. His mark on the examination should be entered in the registrar's office, and a copy with interpretive norms should be furnished him and his major department."

The master's examination is sometimes used as a qualifying examination for candidacy to the doctorate. Since the purpose of a qualifying examination is to determine whether or not the student should be encouraged to proceed toward the doctorate, it should be taken early.

As a mark of progress and a token of certification for a learned job, the doctorate now has the comparative value of the master's degree of fifty years ago.

The above statement reflects very aptly the situation which exists in higher education today. Many young men and women who, ten years ago felt that they had attained the ultimate in preparation for elementary and secondary teaching or in school administration, now require attainment of the doctorate for that same feeling. This is simply another factor which contributes to the present day increase in enrollment in colleges and

universities everywhere.

All of these aspects of increased enrollment in graduate education which have been outlined and cited apply to any of the specific fields within the general area of education. The demand for college credits and degrees is typical in all the areas of interest in the teaching profession.

The dilemma is all too clear! Such a sudden increase in applications for study in the graduate schools and colleges of America has placed a tremendous responsibility upon the shoulders of all those who are assigned the task of judging the advisability of admission for each individual case. With veteran enrollment still at a large figure, it is a recognizable fact that the various institutions are loath to turn away those men and women who aspire to continue their educational pursuits under the enactments of Congress which are intended to assist them in this venture.

It is obvious that beyond a certain point, it is wasteful in time, energy and cost for many students to pursue studies in higher education. Certainly, the acquisition of higher degrees by individuals who are incompetent is a direct reflection upon those institutions which grant such degrees and upon all of the holders of higher degrees throughout the world who have earned them in a justified and meritorious manner. It has been indicated throughout this discussion that the acceptance of large numbers of applicants tends to lower the standards set up by colleges and universities in order to mass produce the educational qualities necessary.

When there are limited facilities in any institution of an educational nature, it becomes necessary to decide who shall enter. This is not a simple problem from any viewpoint. It is one that has been long studied and pursued. The prediction of success in schools beyond the high school level is a subject of wide research, and, fortunately one which has

met with some success at various levels and in many areas.

Some areas of study have been more strict in the matter of entrance requirements than others. Schools of medicine and engineering, for example, have been taxed to the extreme for many years, and as a result have established rigid requirements for acceptance to those fields of endeavor.

> "A need to predict accurately the probable success of applicants for admission to engineering colleges has always existed. But, today, with engineering college facilities taxed to capacity and straining to provide a chance for education to both the veteran and non-veteran, it is increasingly important to select only those applicants as students who have the greatest chance of being benefitted by technical training."[20]

> "A need has been felt for a testing program that would assist in predicting success of students in educational psychology. The purpose of this investigation has been to evaluate a proposed testing program. Increased registration and resulting large classes make it extremely difficult for an instructor to recognize the needs of individual students. If responsible prediction were possible....it would be very useful in counseling students concerning their difficulties in the study before lack of time prohibited anything being done about them."[21]

Certainly, the prediction of success in the graduate school is of vital importance to educators at the college level who are attempting to make just and capable decisions in regard to who may or should enter into the field of graduate study.

It is pertinent to mention some of the work that has been done in the matter of prediction of success in colleges and universities. One such

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20. Cohen, Leonard, "Predicting Academic Success in an Engineering College and Suggestions for an Objective Evaluation of High School Marks", JOURNAL OF EDUCATIONAL PSYCHOLOGY 37:381-384, 1946.
21. Morgan, C. L. and C. C. Steinman, "An Evaluation of A Testing Program in Educational Psychology", JOURNAL OF EDUCATIONAL PSYCHOLOGY 34:495-502, 1943.

fact has evolved from all this research, and it is that failure to take into account the intangible factors of personality and motivation, in addition to other variables such as health conditions will completely nullify all of the more or less accurate predictive measures that are administered to the prospective college student.

> "The trouble with predicting college success on high school performance is the unreliability of performance unless it is coupled with maturity. We make our administrative decisions too often on something that is far less than a total picture of abilities, aptitudes, character and potentialities."[22]

The limitation of intelligence tests, achievement tests and high school records in predicting college success with any great accuracy points to the importance of a number of non-intellectual factors in determining academic performance. These factors, briefly discussed, are vocational motives, educational motives, use of time, study practices, health, extra-curricular activities, and employment.[23]

> "Choice of students on the part of our institutions of higher education are based upon a prediction of one's ability to function successfully in a given situation. It rarely occurs to us that the 'will to achieve' might be equally significant (to measures of capacity) for a basis of prediction. When we predict the success or failure of an individual, solely on the basis of certain tests of his capacity, we are overlooking a very significant element in success or in achievement, viz. 'motivation'. Too many predictive measures are constructed to operate on the assumption that 'all students will deliver a rather uniform output of energy'. Many students upon learning that they have received a low score on some of these tests conclude that they can never do superior work in college courses and immediately settle down to mediocrity."[24]

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22. Johnson, Robert L., "Should Everyone Go To College", PROGRESSIVE EDUCATION 23: 214-17, 1946.
23. Borow, Henry; "Current Problems in the Prediction of College Performance", JOURNAL OF AMERICAN COLLEGIATE REGISTRARS 22:14-26; 1946.
24. Martin, R., "Predicting Success in College", EDUCATION 62:52-58, 1941.

> "There can be no question that in the past score of years and before, our colleges and high schools have made determined efforts to single out those who should go to college and those who should not. Our shelves of educational literature are bulging with reports, studies and proposals that may guide us to guide our youth."[25]

In continuing, Thomas Maher suggests that the high schools are doing a better job of guidance than the colleges. For one thing, he feels that the high school student needs more guidance in the selection of a college.

Probably one of the best predictive measures for college success is the high school record of the individual. The most objective bases for the prediction of academic success have been the high school records of students, group intelligence tests, and college entrance examinations, according to a study made by Weber, Brink and Gilliland.[26]

> "In general, it has been found that the better group intelligence tests correlate between .40 and .60 with general scholastic averages in college. High school standing has been found to yield about the same correlations. Intelligence test scores and high school standings combined have generally had a higher predictive value than either used separately."

In the above study, the following factors were considered in relation to marks in the graduate school:

1. average undergraduate scholarship marks
2. intelligence test scores
3. average undergraduate scholarship marks in the field selected for graduate specialization
4. amount of undergraduate work taken in the field selected for graduate specialization
5. graduate school marks
6. graduate major

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25. Maher, Thomas, "That No Foot Shall Slide", JOURNAL OF HIGHER EDUCATION 14:79-83, 1943.
26. Weber, Janet and W. G. Brink and A. R. Gilliland, "Success in the Graduate School", JOURNAL OF HIGHER EDUCATION 13:19-24, 1942.

The subjects used were 319 students who had graduated from the college of Liberal Arts of Northwestern University, and who had completed at least nine hours of graduate work. Correlations between the above numbered items are given in Table II.

TABLE II

Correlations between Certain Factors in the Prediction of College Success

1 and 5	319 students	r	.61	P.E.	± .02
3 and 5	181 students	r	.62	P.E.	± .03
3 and 6	180 students	r	.62	P.E.	± .03
1 and 2	319 students	r	.44	P.E.	± .03
3 and 2	181 students	r	.37	P.E.	± .04
5 and 2	181 students	r	.31	P.E.	± .03
4 and 5	181 students	r	-.07	P.E.	± .05
4 and 6	181 students	r	-.004	P.E.	± .05

Traxler points up the problems of complex factors which enter into the prediction technique:[27]

> "One's achievement is the level of skill, knowledge and understanding one has attained in a given field, and, as is true of aptitudes, this level depends upon a complex of inborn traits and experiences that do not yield themselves to precise analysis."

There are numerous studies corroborating the evidence in favor of high school grades as predictive devices for college success. F. J. Adams found that the student's quality of achievement during the freshman year in college is best predicted from his high school achievement.[28] Paul L. Dresse found a correlation of .52 between high school and college marks.[29]

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27. Traxler, Arthur E., "Evaluation of Aptitude and Achievement in a Guidance Program", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 5:3-16.
28. Adams, F. J., "Predicting High School and College Records from Elementary Test Data", JOURNAL OF EDUCATIONAL PSYCHOLOGY 29:56-60, 1938.
29. Dresse, Paul L., "Effect of High School on College Grades", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:612-17, 1939.

The difference in high school marking system was noticeable, however, and made accuracy in prediction much more difficult. R. L. C. Butsch found correlations between the rank in one's high school graduating class and his first semester marks in college ranging between .47 and .60.[30] Sylvester B. Schmitz found that high school scholastic achievement is the most efficient single instrument for predicting success.[31] Alvin C. Eurich states that a simple measure, over a four-year period, having the highest predictive value for success in college is rank in the high school graduating class.[32]

P. S. Dwyer reports in a study that the sub-correlations from the high school record is a better predictor for 'A' and 'B' students than for those with 'C' or below.[33] Margaret Mercer found that the predictive value of college admissions showed consistent differences in high school marks and principal's ratings favoring the group now ranking highest in college.[34] P. S. Dwyer, in another study, studied 1,222 students in the University of Michigan and discovered that students from small high schools are less likely to survive in college.[35]

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30. Butsch, R. L. C., "Improving The Prediction of Academic Success through Differential Weighting", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:401-20. 1939.
31. Schmitz, Sylvester B., "Predicting Success in College: A Study of Various Criteria", JOURNAL OF EDUCATIONAL PSYCHOLOGY 28:465-75.
32. Eurich, Alvin C., "Youth in Colleges", THIRTY-EIGHTH YEARBOOK OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION, Part II, 1939, pp. 73-96.
33. Dwyer, P. S., "The Use of Subcorrelations in Determining the Predictive Power of High School Grades", JOURNAL OF EDUCATIONAL PSYCHOLOGY 28:673-80, 1938.
34. Mercer, Margaret, "Predictive Value of College Admissions Data", PSYCHOLOGICAL BULLETIN 36:547-1939.
35. Dwyer, P. S., "Some Suggestions Concerning the Relationship Existing Between Size of High School Attended and Success in College", JOURNAL OF EDUCATIONAL RESEARCH 32:271-81, 1938.

Frances Smith states:[36]

> "High school record, when reduced to a single summary score, is as useful in estimating future scholastic success in college as aptitude percentiles, reading percentiles, or objective English examination percentiles. Reading percentiles or objective English percentiles are about as good for predicting purposes as aptitude percentiles. As might be expected, it seems safer to depend upon several factors in estimating future scholastic success than to depend upon a single factor such as IQ or college aptitude percentiles. The best single indicator....of scholastic success in any given semester is the previous semester's record."

Walter R. Hepner gives added information that may explain the factors underlying the unpredicted scholastic achievement of college freshmen: view the individual as a distinct person, work with him with all available knowledge and avoid the feeling of contentment with dependence on the general conclusion of statistical analysis.[37]

Stephen Corey and George Berry say that liking a school subject is rather closely related to liking the teacher.[38] E. J. Asher and Florence Grey found that personal history inventory when combined with test scores make prediction more accurate.[39] Frank L. Manning stated that the results of tests may be affected by illness, indifference or personal factors.[40]

Garrett points out that statistical results are based on chances or probabilities. Chances increase or decrease according to the standard or probable error of the measuring instrument used, plus personality, environment, health or other factors that may operate to influence the

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36. Smith, Francis F., "The Use of Previous Record in Estimating College Success", JOURNAL OF EDUCATIONAL PSYCHOLOGY 36:167-176, 1945.
37. Hepner, Walter R., "Factors Underlying Unpredicted Scholastic Achievement of College Freshmen", JOURNAL OF EXPERIMENTAL EDUCATION 7:159-188, 1939.
38. Corey, Stephen M. and George S. Beery, "The Effect of Teacher Popularity upon Attitude Toward School Subjects", JOURNAL OF EDUCATIONAL PSYCHOLOGY 29:663-70, 1938.
39. Asher, E. J. and Florence Grey, "Relation of Personal History Data to College Success", PSYCHOLOGICAL BULLETIN 36:618, 1939.
40. Manning, Frank L., "How Accurately Can We Predict Success in College", JOURNAL OF THE AMERICAN ASSOCIATION OF COLLEGIATE REGISTRARS 14:35-38, 1938.

prediction. The chances for success can be pointed out to the individual.[41] Regardless of the intelligence of the individual, diligent study and application are necessary for college success, he says. The physical health of the individual must be kept in mind.

Another good predictor of college grades are college grades themselves. "The best single indicator....of scholastic success in any given semester is the previous semester's record".[42] According to Royal Gilkey, the correlation of the general average of marks is higher than the correlation of marks in related fields.[43] Cecil B. Read says that studies of the prediction of college success have usually dealt with the relation of pre-college measures with first semester marks alone. He reports correlations between pairs of semesters in college to range from .516 to .749.[44] The fourth semester shows the closest average agreement with all others and the first agrees as well with it as does any.

Charles Boardman and Dale Patterson say that scholastic performance during the first three years is the best single means so far tested for selecting students for admission to the senior year.[45]

The factor of intelligence is certainly not to be discounted in the prediction program. It is considered especially important when combined with other factors. Claude L. Nemzek found that the intelligence quotient

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41. Garrett, Wiley S., "The Ohio State Psychological Examination", OCCUPATIONS 22: 489-495, 1944.
42. See page 20. Smith, Frances F., Idem.
43. Gilkey, Royal, "The Relation of Success in Certain Subjects in High School to Success in the same subjects in College", SCHOOL REVIEW 37:576-88.
44. Read, Cecil B., "The Relationship of Scholastic Averages in Various Semesters", SCHOOL AND SOCIETY 52:468-69, 1940.
45. Boardman, Charles W. and Dale Patterson, "Achievement Examinations as a Technique for Selecting Students In Education", SCHOOL AND SOCIETY 49:586-88, 1939.

has more value for direct prediction than for differential prediction.[46] John R. Berry found that the reliability of prediction of probable college attendance on the basis of intelligence test scores increases as one approaches either extreme of ability.[47] Despite this fact, Noel Keys found correlations between intelligence quotients and college marks to be as low as .35.[48] College standing and intelligence have a correlation of .706, according to L. D. Hartson.[49] T. M. Livesay found that the intelligence test scores of students tested at the beginning and again at the end of their college years were increased.[50]

C. C. Ross states that telling intelligence test scores, even to low ability groups results in better work and increases their chances for success.[51] M. V. Marshall reports a study at William and Marshall College in which he states that their policy there is 'Easy to enter, difficult to graduate'.[52] A study was made on 187 students. The IQ's were obtained from their high school principals. These varied from 78 to 154, and the average was 110.6 . Of these whose intelligence quotients were below 100, one fourth were graduated in the usual time, but the three fourths who were

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46. Nemzek, Claude L., "The Value of Certain Factors for Direct and Differential Prediction of Academic Success", JOURNAL OF EXPERIMENTAL EDUCATION 7:199-202, 1939.
47. Berry, John R., "Who Goes to College", EDUCATIONAL ADMINISTRATION AND SUPERVISION 25:25-36, 1939.
48. Keys, Noel, "The Value of Group Test IQ's for Prediction of Progress beyond High School", JOURNAL OF EDUCATIONAL PSYCHOLOGY 31:81-93, 1940.
49. Hartson, L. D., "Relative Value of School Marks and Intelligence Tests as Bases for Rating Secondary Schools", SCHOOL AND SOCIETY 49:354-56, 1939.
50. Livesay, T. M., "Does Test Intelligence Increase at the College Level", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:63-68, 1939.
51. Ross, C. C., "Should Low-Ranking College Freshmen be Told Their Scores on Intelligence Tests", SCHOOL AND SOCIETY 47:678-80, 1938.
52. Marshall, M. V., "What Intelligence Quotient is Necessary for Success?" JOURNAL OF HIGHER EDUCATION 14:99-100, 1943.

eliminated found eleven out of twenty-one leaving college at the end of the first year. Of the 78 students with IQ's below 110, 39% were graduated in the usual time. Of 99 students with an IQ over 110, approximately 64% were graduated in the usual time.

There have been numerous tests developed for the college level in the effort to predict and evaluate success in these institutions. Helen Bishop found the Terman Group Test of Mental Ability correlated .524 with scholarship for the first year of college, while the scores of the Kentucky Classification Test correlated .574 with scholarship for the first year of college.[53] Ralph R. Wolf attempted to predict the scholastic success of students from the scores of aptitude tests given at the time of entrance to college; three fourths of the students showed no difference in their freshman year, but for one-fourth of them, the differential prediction was found to be possible for upper-class performance.[54]

Joseph V. Hanna found that scores on cooperative English Tests and marks in high school English can be used equally well in predicting success in college English. However, scores in cooperative tests in mathematics and French are better for prediction than marks in high school.[55]

In studying law aptitude tests, the authors, Walker and Harrell, concluded that "while no legal aptitude test correlated as high with law grades as do pre-law grades, the most predictive tests are those calling

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53. Bishop, Helen, "A Study of Freshmen Intelligence to Scholarship and to Mortality", KENTUCKY PERSONNEL BULLETIN, September 1938, p. 4.
54. Wolf, Ralph R., "Differential Forecasts of Achievement and their Use in Educational Counseling", PSYCHOLOGICAL MONOGRAPHS, 51:1-53, 1939.
55. Hanna, Joseph V., "A Comparison of Cooperative Test Scores and High School Grades as Measures for Predicting Achievement in College", JOURNAL OF APPLIED PSYCHOLOGY 23:289-97, 1939.

for reasoning rather than memory."[56] Gertrude Hildreth, in comparing early Binet records with College Aptitude scores says that if a student is high originally he is likely to remain high, but if he is low, the prediction of ultimate status is uncertain.[57]

Charles Goodman studied the prediction of college success with the Thurston Primary Abilities Test. He concludes, among other things:[58]

1. The Thurstone Primary Abilities Tests correlate, on the whole, as well as most standardized intelligence tests with criteria for college success.
2. The Thurston Primary Abilities Tests correlate with individual college courses to some degree and can be used for prediction of success in these courses.
3. Verbal ability correlates higher than any other of the abilities with semester point averages and individual college courses.

Wiley S. Garrett reports a study made in which the Ohio State Psychological Examination was given to all seniors at the Warren G. Harding senior high school during the five years before 1944.[59] As a result of a follow up study on this testing program, it was found that the Ohio State Psychological Examination is a reliable guide in predicting college grades, as indicated by an r of .608 obtained between the raw scores on this test and the college grades received from fifty-two different colleges by 200 Harding high school graduates. The high school grade point average representing four years of study is the best single predictor of college grades. This is indicated by an r of .665 obtained between the average of all marks earned

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56. Walker, E. L. and T. W. Harrell, "Predictive Value of Certain Law Aptitude Tests, EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 2:201-207, 1942.
57. Hildreth, Gertrude, "Comparison of Early Binet Records with College Aptitude Scores", JOURNAL EDUCATIONAL PSYCHOLOGY 30:365-71, 1939.
58. Goodman, Charles H., "Prediction of College Success by Means of Thurston's Primary Abilities Tests", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 4:125-140, 1944.
59. Garrett, Wiley S., op. cit.

in high school and first semester college marks. Combining these two measures, the Ohio State Psychological Examination and high school grades raises this prediction. Combined they predict college grade point averages to a value of 0.692.

Walter Cook, of the University of Minnesota describes a testing program for graduate education majors at the school.[60] In 1940 the graduate faculty of the University of Minnesota's College of Education initiated a requirement that all students registered in the graduate school and taking advanced work in education must take a battery of tests, and in 1940 and 1941 these included:

1. The Miller Analogies, Form G
2. Educational Information and Application.
   (A 70 minute test constructed by the author to measure general informational background in education and ability to make application of educational theory to described situations.)
3. COOP Survey Test in Math, Form P
4. COOP English Test, Form OM

A profile, based on norms was furnished the student's adviser for interpretation. The purpose hoped for was:

1. As a partial basis for admission to the graduate school.
2. As a basis for preliminary advice to the student.
3. In indicating whether the plan to be followed in qualifying for the master's degree should emphasize research or course work.
4. As a partial basis for awarding assistantships.
5. As a partial basis for encouraging capable students as early as possible in order to give them the special attention they warrant.
6. In identifying capable students to pursue advanced graduate work.
7. In making it possible to know more intimately the great number of graduate students who are on the campus only during the busy summer session.

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60. Cook, Walter W., "Predicting Success of Graduate Students in a College of Education", SCHOOL AND SOCIETY 56:192-195, 1942.

In the fall of 1941, a preliminary study was made to determine the value of the tests for these purposes. These criteria were used:

1. Honor point ratio of graduate courses
2. Numerical scores of students in various graduate courses, the scores being those upon which the final letter grade in these courses were based.
3. Numerical scores on graduate comprehensive examinations administered to both the MA and the Ph.D. candidates at the end of their course work in educational administration and elementary education.

The Education Test was found to yield the best overall measure of prediction. Its median correlation with grades in statistics and measurement courses was .70; in elementary and secondary education courses it was .53. The Miller Analogies Test was second to the Education Test in overall prediction. The correlation between the test and the Miller Analogies was .67, which was the highest of the correlations between combinations of the four tests.

Loraine Bruce reports a study made at Colorado State College of Education, using the CAVD Intelligence scale at the doctoral level.[61] Students matriculating on the doctor's level from June, 1932 to August 1938 were given the I. E. R. Intelligence Scale CAVD, Levels M, N, O, P, and Q, Form 4. In order to complete matriculation in 1936 and 1937, students on the doctor's level were required to take the American Council on Education Cooperative English test and a battery of twelve Educational Tests. English Usage and Spelling were the parts of the English test that were used. The battery of educational tests consists of tests in the following subjects:

Techniques of curriculum making
Elementary education
History of Education

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61. Bruce, Loraine, "A Study of the CAVD Intelligence Scale and its results on the Doctor's level at Colorado State College of Education", JOURNAL OF EXPERIMENTAL EDUCATION 9:216-18, 1941.

Mental tests	School Administration
Personnel and guidance	Secondary Education
Philosophy of Education	Educational Tests
Psychology of Learning	Statistical methods
Research	

The tests were made up by various faculty members of Colorado State College of Education and were revised by the personnel department of the college. There are two equivalent forms of each test. All the items of each test are multiple choice of four choices. The number of items in the various tests range from forty for research to 57 for personnel and guidance. The product moment correlation coefficient between scaled scores on the CAVD Intelligence scale and the point-hour ratio based on the two quarters of marks from which the reliability was computed is .521 $\pm$ .094. Other correlations obtained by graduate students at the doctorate level may be found in Table III.

TABLE III

Certain Correlations Obtained at Colorado State College of Education Using the CAVD Intelligence Scale

American Council Education Coop English Test and the CAVD	.487 $\pm$ .104
Scaled Scores on CAVD and Spelling	.610 $\pm$ .086
Educational Tests and CAVD	.691 $\pm$ .076

Bruce's conclusions:

> "The I.E.R. Intelligence Scale CAVD, Levels M, N, O, P, and Q are a discriminating instrument for determining the range of abilities of graduate students on the doctor's level. The correlation between the CAVD scale and teacher's marks is relatively low; however, this correlation is consistent with the low reliability of teacher's marks at the doctor's level."

Maurice Troyer discusses a comprehensive examination used at Syracuse for candidates for the master's degree in the School of Education.[62]

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62. Troyer, M. W., "An Attempt to Improve the Comprehensive Examination at the Master's Level", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 6:235-47.

Four areas are involved:

1. Philosophy and Educational Sociology
2. Educational Psychology
3. Measurements and Statistics
4. Research

Four goals were set up in regard to educational psychology, for example:

1. Knowledge of fact and principles from the literature of professional education.
2. Ability to interpret professional data presented either in tabular, graphic or case study form.
3. Ability to make good decisions when faced by professional problems and to give appropriate reasons to substantiate their decisions.
4. A tendency to keep up with current professional literature.

For each core area there were:

25 multiple choice items
1 interpretation of data problem
1 application of principles
10 matching items

Multiple choice items were mostly 'best answer' type. Matching items were used for the 'keeping up' with current literature. Names of men were listed on one column and in the other were items of current interest to which certain of those names should be attached.

Students working on Ph. D.'s or Ed. D.'s add three other areas to the four listed:

1. Administration and Organization
2. Supervision and Curriculum
3. Personnel and Guidance

One of the best known measures for predicting success in the graduate school is the GRADUATE RECORD EXAMINATION known colloquially as the GRE.

> "This elaborate instrument of appraisal is of special interest because it has elevated measurement of the student and his knowledge from high school and collegiate levels, as represented by the Pennsylvania Study and other state

testing programs, into the comparatively rarefied climate of graduate schools."[63]

There are numerous other measures, reliable and valid to some extent for the prediction as well as diagnosis of success and standing in graduate education. It is not necessary to cover each of them, for the intention is to survey the nature of prediction in general at this time.

It should be noted that in the readings cited thus far, there has often been shown the importance of combining measures for the greatest accuracy in prediction. Studies already cited by Cook (p. 25), Bruce (p. 26) and Troyer (p. 27) show the importance of combining several measures of an achievement examination in the field or fields of endeavor which are of interest to the student as supplementary to or supplemented by other measures, either intelligence examinations, aptitude tests, or standardized predictive instruments.

Hurd points out that[64]

> "Prediction tests intended for prediction alone should be of the same type and in the same field as the achievement that is being predicted. Instead of giving general intelligence tests, then to predict scholastic achievement in a college course in mathematics, for examples, tests involving the expected skills in mathematics should be used."

Daniel Harris summarizes many of the findings:[65]

> "These three factors seem to be high on the list of valuable predictive measures for college success:

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63. Crawford, Albert B. and Paul S. Burnham, FORECASTING COLLEGE ACHIEVEMENT Yale University Press, New Haven, 1946. pp. 118-123.
64. Hurd, Archer Willis, "The Problem of the Prediction of College Success", JOURNAL OF EDUCATIONAL RESEARCH 38:217-219. 1944.
65. Harris, Daniel, "Factors Affecting College Grades: a review of the Literature, 1930-1937", PSYCHOLOGICAL BULIETIN 37:125-66. March, 1940.

1. Intelligence
2. High school grades
3. Content examination of one sort or another.

Others have found rank on the high school graduating class roll to be a good predictive measure. Others have found the pre-college examination to be the best."

It is likely that the necessity for prediction of success in the graduate school would weaken the value of the high school grades listed above. College undergraduate grades might be substituted as a contribution to the overall predictive study.

One difficulty which arises in correlating various measures with success in college and university work is the inaccuracy of the grades themselves. In an investigation of college grades, Rogers found:[66]

1. The average reliability of term grades for the eight semesters of college is .66.
2. From the first term to the eighth term there is a decrease in correlations from .80 to .48.
   1st and 2nd terms - .80
   1st and 8th terms -.48
3. Grades in January are better prognosticators of grades in June than are June grades prognosticators of grades in the following January.
4. There is a higher average of the correlations at the beginning of the college course than at the end of the college course.

Melvin Rigg concludes that the correlations between intelligence and first semester scholarship are higher than those between intelligence and four year's scholarship.[67] Rigg feels that these factors enter into the acquisition of classroom grades:

1. Doing just what the assignment calls for
2. Doing the work on time

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66. Rogers, Herbert W., "The Reliability of College Grades", SCHOOL AND SOCIETY 45:758-760, 1937.
67. Rigg, Melvin G., "The Relation of college Achievement Tests to Grades and to Intelligence", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:397-400.

3. Giving the teacher back his own ideas
4. Presenting the work the way the teacher wants it: for instance, some teachers want voluminous examination papers; others prefer short and concise answers.
5. Diplomacy, (the students call it politiking)
6. Regularity of attendance, at least on strategic days when tests are scheduled or papers are due.

A. W. Hurd points out that "one reason for unreliable prediction resides in invalid and unreliable grades by instructors."[68] Sarbin and Bordin offer some evidence in the matter of grades:[69]

> "If all the literature on the prediction of college grades were to be assembled in one place, the outstanding characteristic would be the almost universal agreement that correlation coefficients higher than .70 are practically impossible with existing methods."

The authors turn their attention to the honor point ratio for the cause of this. They describe it as unreliable and heterogeneous. The unreliability of grades themselves, reflecting the standards of different teachers make this point obvious. The authors feel that a new standard for measuring college achievement is needed. It should be superior to teacher's marks. It should have greater reliability and be more homogenous with respect to scale and to the nature of the factors included. It should also be relevant to the educational objectives being measured. They present data in this study to show that a pencil and paper evaluation instrument such as the SOPHOMORE CULTURE TEST is more valuable for prediction purposes than the grade criterion.

The problem of large numbers of applicants for advanced educa-

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68. Hurd, A. W., "Implications of a Brief Study of Prediction of Success in the Medical School, Medical College of Virginia", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 8:127, 1948.
69. Sarbin, T. R. and E. S. Bordin, "New Criteria for Old", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 1:173-186.

tional opportunities has been shown thus far. The need for some method of separating these individuals by levels of ability has been indicated. The approach which is taken toward these matters by various schools and methods has been surveyed briefly. The focus of this study may now be brought to bear on its own peculiar problems and needs.

NATURE OF THIS STUDY.

This study is particularly concerned with one area in graduate education--the field of music education. It is concerned with those same problems which confort other fields of graduate and advanced study in regard to the tremendous number of applicants for education and training in the graduate schools of the colleges and universities of America. It is concerned with the problem of counseling those aspirants for higher degrees and training who may or may not be equipped for advanced work, either because of limits of capacity or limits of fundamental knowledge and experience in the areas basic to their graduate schooling.

The individual in whom the study is interested is the candidate for higher degrees in music education. This study does not concern itself with the prediction of teaching success or of success beyond the confines of the academic halls. It is related entirely to the problem of guidance and counseling that must take place in the graduate school before any student is admitted.

PURPOSE AND IMPORTANCE OF THIS STUDY.

The purpose of this study is to develop an achievement test for use in the field of music education at the graduate level, to assist in

guidance and the prediction of success in that field.

Secondly, it is the purpose of this investigation to develop this test from the standpoint of reliability, validity, and usability in the field of graduate study in music education.

It is the further purpose of this study to standardize this test.

The importance of such a measure is manifest in the preliminary discussion of this paper. The problem of 'whom to educate' at the graduate level today is of paramount importance for the several reasons indicated in that discussion. With graduate education available to more people than ever before, an overflow can result either in a lowering of standards or of poor instruction or of both. Only through a judicious selection of candidates for higher degrees can this problem be controlled in an adequate manner. The status of graduate education in all America and the status of every graduate degree now in effect rest upon the solution of this problem. This research is important in its attempt to aid in the solution of the whole problem of the prediction of success in music education at the graduate level.

CHAPTER II

BACKGROUND AND STATUS OF ACHIEVEMENT TESTING

Summary of the development of achievement testing.

The achievement test represents one of the oldest forms of measurement in scholastic endeavor. "Intelligence tests attempt to measure educability, while achievement tests attempt to measure education."[70] The achievement test is a measure of learning itself, rather than a measure of the capacity for learning. The names of Horace Mann who pointed out the advantages of the written examination over the oral examination in 1845; the Reverend George Fisher, headmaster of a school in Greenwich, England, who used a 'scale book' in which values were assigned to each degree of proficiency in different school subjects; Dr. J. M. Rice, to whom credit is given for the development of the comparative test in America, are familiar in the study of the historical background of achievement testing. Dr. Rice demonstrated the truth of his theory by giving tests in arithmetic and in spelling in a large number of school systems.[71] His investigations revealed startling differences in achievement.

> "A uniform, although not standardized spelling test was administered to schools in various parts of the country. Afterwards, the results involving about 100,000 cases,

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70. Ross, C. C., MEASUREMENT IN TODAY'S SCHOOLS, Prentice-Hall, Inc. New York, 1947. p. 26.
71. Greene, Harry A. and Albert N. Jorgensen, THE USE AND INTERPRETATION OF HIGH SCHOOL TESTS, Longmans, Green and Co., New York, 1936. p. 3.

> were tabulated according to the amount of time devoted to spelling in the school program. Contrary to the usual assumption, Rice found little or no relation between the results obtained and the time expended. Although considerable skepticism was manifested toward the Rice inquiry at the beginning, the evidence was so convincing as to compel assent."[72]

Of extreme importance in the furtherance of these meager beginnings in the measurement movement is the name of Edward L. Thorndike. He, or his students were responsible for many of the early tests and scales for measuring achievement. The first test was the Stone Arithmetic Test published in 1908, and the first scale was the Thorndike Handwriting Scale announced in 1909 and published the following year. The next few years saw the appearance of scales and tests in various fields.[73]

Another factor which appeared as an impetus to the testing movement was the discovery that existing measurements were bad. Studies, beginning about 1910 made this point clear. Max Meyer published a startling study in 1908 showing the need for a reform in college marking systems.[74] His results showed extreme variations between methods of marking in different subjects. At the University of Missouri over a period of five years he discovered such anamolies as 55 per cent of A's in philosophy and only one per cent in Chemistry III; 28 per cent failures in English II and none in Latin I.

Other studies corroborated this evidence. Even though such deviations might be explained by individual cases, the findings of studies made by such as Starch and Elliott further substantiated the evidence.[75] 116

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72. Ross, op. cit., p. 21.
73. Ibid., p. 44.
74. Meyer, Max, "The Grading of Students", SCIENCE 28:243-250, 1908.
75. Starch, Daniel and Edward Elliott, "Reliability of Grading Work in Mathematics", SCHOOL REVIEW 21:254-259, 1913.

high school teachers of mathematics marked a copy of the same geometry paper with values ranging from 28 to 92, despite the objectivity of the subject. Falls asked 100 English teachers to mark a composition on a percentage basis, with instructions to assign it to a particular grade level.[76] These percentage values ranged from 60 to 98, and the estimate of grade placement ranged from the fifth grade to the junior year of college.

Still more damaging were the results of a study made by Starch in which he found that college instructors, regrading their own papers, assigned different marks to them.[77] Other investigations have been made along these lines, and each bears witness to the fallibility of the existing system of grading. In 1918, Thorndike published his well known paper, which began, "Whatever exists at all exists in some amount", and urged tolerance toward the problem of quantitative thinking in education.[78] In the years that followed, the testing program became of age. In the next ten years, standardized tests began to appear in specific form. Diagnostic tests were developed in several fields, and practice tests in subjects such as arithmetic took form as a useful teaching technique. Tests were organized into batteries, and in 1922 the first edition of the Stanford Achievement Test made its appearance. High school tests were developed, but scarcely kept pace with the production of elementary school

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76. Falls, J. D., "Research in Secondary Education", KENTUCKY SCHOOL JOURNAL 6:42-46, 1928.
77. Starch, Daniel, "Reliability and Distribution of Grades", SCIENCE 38:630-636, 1913.
78. Thorndike, Edward L., "The Nature, Purposes, and General Methods of Measurements of Educational Products", SEVENTEENTH YEARBOOK OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION, PART II, 1918. pp. 16-24.

tools.

Some progress was made in the development of achievement tests on the college level.

The development of educational measurements has been aided by various research organizations. Research bureaus have been effective in making the use of educational tests more popular. Teachers and administrators have become familiar with terms such as 'correlation', 'reliability', 'deviation', 'validity', and even 'multiple correlation', 'item analysis', 'factor theories', and 'variance and covariance'.

Now there are tests and measuring devices for most of the subjects in the elementary and secondary school fields, and in many branches of higher education. The recognition of the value of standard tests for diagnostic purposes has done much to popularize their use and to transfer them from the hands of specialists to the hands of the classroom teacher.

Prognosis of scholastic success is often based in part or entirely on the results of one or more achievement tests in a particular subject area. This applies to the higher levels of education as well as to the formal school training at the elementary and secondary levels. Experience has shown however that utter dependence upon such measures may tend to overlook certain potentialities in the individual's personality and general intelligence.

> "His strongest intelligence powers may be latent and as yet uncultivated, through lack of recognition and opportunity. In such cases, achievement tests can throw little light upon what he might have acquired under other educational circumstances and from other courses than those actually experience, or what path he should thenceforth follow."79

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79. Crawford, Albert B. and Paul S. Burnham, FORECASTING COLLEGE ACHIEVEMENT, Yale University Press, New Haven, 1946. p. 10.

Nevertheless, any educational aptitude measure is at least partly dependent upon previous scholastic achievement. Basic concepts in handling test situations are certainly necessary for the successful candidate in a testing situation. Any test reflects the achievement of the individual in formal training and education to a certain extent. The fact that he can read and write is basic in itself.

College-entrance examinations and other achievement indices have for some years been extensively used for placement. The validity of such tests is largely dependent upon the individual's earlier formal preparation. Their content is largely determined by that of standard curricula. Hence, they must remain backward looking to a considerable degree by reason of their usual specificity. This emphasizes already-acquired knowledge rather than readiness to acquire it. Yet aptitude tests are also retroactive, in so far as they must sample past learning even for future reference in terms of its novel applicability.

This is pertinent in that it indicates the presence of the achievement element in many testing situations, and especially is this true in regard to those tests which purport, or at least attempt to deal with the prediction of success in the college situation.

The standardization of scholastic appraisal through standardized achievement tests has been criticized as tending to freeze educational curricula and pedagogical methods alike into undesirable patterns and to place undue emphasis on rote memory. Other objections often follow the pattern of criticism that objective tests cannot adequately measure the ability to think and to organize ideas. This was true at one time, perhaps, but modern methods of test construction show a definite trend toward the measurement of higher and more complex thought processes.

In recent years, extensive progress has been made in the field of predictive testing for the college level. The Cooperative Test Service, for example, has produced numerous tests of value to the director of guidance and those responsible for college admissions. There is a College Sophomore Testing Program, a National Freshman Placement Program, and specific area tests such as those for the College Chemical Testing Program, the College Physics Testing Program, and such.

One of the best known developments in recent years in the field of forecasting achievement in college is the GRADUATE RECORD EXAMINATION.

> "The Graduate Record Examination project of the Carnegie Foundation for the Advancement of Teaching was inaugurated in 1936. After two years of experimentation and research a final form of the examination was produced. Last year, two new types of tests were introduced into the series.... there are now three Graduate Record Examinations. As originally conceived, the Graduate Record Examination was appropriately named. The first examination was designed to provide objective measures of the college graduate's scholastic record, with respect to knowledge. As a supplement to the substitute for t he college record, the examination was used as a record of the graduate's scholastic preparation."[80]

There is abundant need for a national examination service in higher education that can provide examinations designed to fulfill these functions:

1. To aid in the selection of graduate and professional school candidates.
2. To provide a basis for determining the extent and nature of the growth and development of the student's general educational background and achievement as he progresses through college.

The purpose of the original Graduate Record Examination was that of providing a basis for predicting success in graduate and professional

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80. Vaughan, K. W., "The Graduate Record Examination", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 7:745-56, 1947.

schools. To accomplish this purpose a series of tests in broad areas of subject matter, comprising the principal fields of undergraduate study, and a series of advanced tests in specialized areas were constructed.

It seems reasonable to suppose that it is possible to construct an examination whose purpose is to predict success in the graduate and professional school more effectively. It might be possible, for example, to disregard subject fields and to prepare a composite test that would be made up of questions measuring those particular abilities that are most crucial in graduate study. The Graduate Record Office has constructed a series of GENERAL EDUCATION TESTS and a GRADUATE APTITUDE TEST. These tests are designed to be used in conjunction with the advanced test services of achievement examinations in specialized fields of study. It should be noted that the need for advanced achievement tests in the candidates' field is still present.

It may be possible to accomplish one purpose of the Graduate Record Examination--that of predicting success in graduate and professional school study--efficiently and effectively by a highly reliable test of general ability, used in conjunction with a searching achievement test in the field of specialized study. Developed during 1945-46, the GRADUATE AND PROFESSIONAL APTITUDE TEST is intended to provide differential measures of general scholastic ability. The general scholastic ability section of the GRADUATE APTITUDE TEST includes two tests --VERBAL ABILITY and QUANTITATIVE ABILITY. Scores from these are to be used in conjunction with scores obtained from the ADVANCED TEST selected by the student.

The original examination was a battery comprised of the following elements:[81]

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81. Crawford and Burnham, op. cit., p. 121f.

"(a) The General Examination of eight tests taken by all students, viz: mathematics, physics, chemistry, biological science, social studies (history, government and economics), literature, fine arts and verbal factor. This latter is a test of vocabulary, reading and language comprehension (accuracy of discrimination in word meanings).

(b) Advanced Subject Tests, of which each student takes one in the subject of his choice--usually his previous major. Advanced Subject Tests are offered in: fine arts, biology, chemistry, economics, engineering, French, geology, German, government, history, literature, mathematics, philosophy, physics, psychology, and sociology. Still other advanced tests are under preparation."

"Whatever changes are made in the nature of items or even in fields represented in t he general sections comprising the battery, its essential nature will doubtless be preserved. This includes a liberal sampling, through objective-type questions, of individual performances in the areas mentioned above and reporting thereon by 'profiles', which indicate each participant's relative standing on each section as compared with the total population tested."

Major findings thus far clearly indicate:

(a) High individual reliability of these numerous carefully developed objective tests, even at more advanced levels than have previously been attempted by these means;
(b) Validity equal, if not superior to traditional academic records of scholastic performance based upon much longer observation (about seven hours testing time versus four academic years);
(c) Maximum forecasting efficiency of promise for graduate study, when this is based upon a combination of subjective (academic) and objective (GRE) records.

The Graduate Record Examination, discussed in the preceding paragraphs is one of the best known standardized measures for the graduate school. There are numerous studies and measurements of great worth in the matter of the prediction of success in undergraduate college work. Over thirty years ago Professor Carl Seashore instituted such a program at the University of Iowa as COLLEGE QUALIFYING EXAMINATIONS.[82]

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82. Ibid., p. 123.

> "A vast amount of subsequent trial-and-error research leading to new methods of appraisal must be recognized, and due credit given to his early appreciation of the aptitude concept."

The present Iowa battery contains a series of DIFFERENTIAL measures, yielding individual profiles of respective promise for more or less disparate college preparatory or subsequent major undergraduate fields. The Iowa program combined both aptitude and achievement features; certainly it is forward-looking in respect to the educational guidance of youth, as well as retrospective in terms of measuring past accomplishment. It tends to emphasize functions rather than facts.

The GENERAL EDUCATIONAL DEVELOPMENT TESTS were devised for the use of the U. S. Armed Forces Institute, and are published by the American Council on Education. They are published in two separate batteries, one for use at the high school and other at the level of the first two years of college. The latter are intended to determine whether or not the individual tested is as capable of carrying on advanced college work as the student who has taken certain broad introductory or survey courses generally offered in the first two years of the liberal arts college, or has reached the same level of general educational development as the student who has had such survey courses.[83]

The college-level tests of the GED battery are similar to the high school tests in areas covered, covering English composition, the social studies, the natural sciences and literature. A mathematics section, included in the high school tests, is omitted in the college-level battery. Special examinations corresponding to various college courses in mathematics are provided instead of a comprehensive examination at this level.

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83. Ibid., p. 128.

Callis and Wrenn made a study of these tests for the purpose of examining their predictive value for scholastic success. These conclusions were reached:[84]

> "1. The total GED tests score is better than any of the individual GED tests as a predictor of scholastic achievement for the sample used.
> 2. The GED Test II (social science) is the best individual GED Test as a predictor of scholastic success for the sample used.
> 3. Of the measures studied and reported to this time (1947), the total GED tests score shows promise of being one of the best single predictors of scholastic success."

The preceding paragraphs represent samples of the type of work which has been in progress during the past decade in the field of testing at the college level, with the express purpose of predicting success. The work mentioned is representative of exemplary attempts to reach a solution to the situation in a scientific and valid manner, and the obvious success in many cases is gratifying indeed.

RELATED STUDIES IN MUSIC EDUCATION.

When the predictive study is narrowed to the field of the graduate student in music education, the need for a valid instrument of measurement is more apparent. The major in graduate music education is involved in many fields of endeavor, including all the various aspects of musical study; the many phases of educational pedagogy and theory as well as educational psychology; and the fields of applied psychology as well. It is clearly seen that any testing program for prognosis of success must

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84. Callis, Robert and C. Gilbert Wrenn, "The GED Tests as Predictors of Scholastic Success", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS. 7:93-100, 1947.

necessarily bear witness to the individual's capabilities in several fields.

To the writer's knowledge, there is no single standardized measure for the purpose of predicting success on the basis of those many fields which the candidate must pursue in graduate study in music education. The following discussion will deal with existing measures in the field of music itself.

Tests of a standardized nature now in use are largely at the primary and secondary school levels with some studies designed for use in undergraduate college work. Nevertheless, some study of the nature of these tests is necessary in relation to the present topic.

> "Although it is difficult to obtain specific figures, a study of various lists of tests indicates that there are about three thousand which bear upon subjects which are included in public education; and that about fifty of these, or one sixtieth of the total, relate to music. When we narrow the field to consider the problems of music education, we are astonished to find that music educators are lagging far behind leaders in other fields."[85]

Dr. Max Schoen pointed this up in a report to the Music Teachers National Association.[86] He concluded that the testing situation, while a credit to the psychologist, represented a disgrace to the music educator since the music profession had made insufficient use of scientific literature in school music, investigations, and that people in the school music profession had made little or no contribution to the problems of placing music education on a scientific basis. Of some 300 experimental studies made between 1925 and 1935, not one was in the field of music

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85. Dykema, Peter and Karl Gehrkens, THE TEACHING AND ADMINISTRATION OF HIGH SCHOOL MUSIC, C. C. Birchard and Co., Boston, 1941. p. 366.
86. Schoen, Max, "School Music and Scientific Research", MTNA PROCEEDINGS, 1935, p. 53.

education, according to Dr. Schoen.

Since that time, however, progress has been made in the development of new interests in this subject by school administrators and research personnel in music.

Measurement in music takes two major lines of approach. The first is the determination of basic aptitudes. Here, as in other subjects, the techniques and instruments used are those of psychology. Accomplishment in music depends to such a large degree upon the existence of special aptitudes that this phase of measurement must be emphasized. The second approach to the problem is pedagogical and is based upon the use of achievement tests for the three-fold purpose of measuring the knowledges, skills, and appreciative aspects acquired as the result of training.

An outstanding American name in the psychology of musical talent is that of Carl E. Seashore. His main contribution is probably that of having collated earlier studies which had demonstrated the need of revising the heretofore largely undifferentiated conception of musical talent, and breaking it down into a number of elements, finding in these and measuring them, the best indication of what may be considered musical endowment. His second contribution is the still disputed or at least unsettled contention that musical capacity is very largely inborn and practically remains unchanged throughout life.

There have been two objections to this conception, the one being that in many cases our powers do change under the influence of environment or training; and the other that even though our potentialities are determined at birth, there is an enormous difference in the amount of use which we make of our talents. This latter contention is accepted by Dr. Seashore without relinquishing his original claims. But to most inquirers the implications

of the two positions are quite different. They maintain that the important question is, can training or growth improve ability? Certainly experiments have shown that even in that most vital of all the Seashore tests, namely the discrimination of pitch, it is possible for a subject to increase his score greatly-- some investigators say almost 100%--through repeated trials or through development.

The Seashore MEASURES OF MUSICAL TALENT are undoubtedly the best known tests in the field of musical ability. As previously indicated, the question of their worth in the task of prediction is one that is widely debated. A more modern approach to the problem, in conformity with gestalt principles of psychology, visualizes the testing process in music education as one of testing the whole musical personality rather than isolated sensory capacities. The philosophy of Seashore is that there are several entities which add up to the musical ability of the individual, whereas others believe that musicality should not be broken down into constituent elements for prediction since it is the whole which is manifested in the function of musical activity.

Notable among the critics of the Seashore philosophy of musical talent, and hence of the MEASURES themselves is James L. Mursell of Columbia University who has attacked them vigorously for over a decade, backing his arguments with statistical proofs. The debate between Seashore and Mursell has appeared in publications such as the MUSIC EDUCATORS JOURNAL. Particularly effective is the data that Mursell presents in his PSYCHOLOGY OF MUSIC, which appeared in 1937.[87]

In his discussion of the Seashore tests, it should be remembered

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87. Mursell, James L., PSYCHOLOGY OF MUSIC, W. W. Norton, New York, 1937. pp. 287-319.

that in 1939 these measures were revised, and the test, "Sense of Consonance" was replaced by a test, "Timbre". Hence, Mursell's statistics are based on the original battery of tests. This does not alter the general critical nature of the Mursell approach, however.

In one of the best known investigations of the Seashore battery, Hazel Stanton conducted a study which extended over a period of ten years at the Eastman School of Music in Rochester.[88] The Seashore measures, together with the Iowa Comprehension test (a group test of general intelligence) were administered to all entering students. These students were then placed into various categories on the basis of test results, and were classified as 'discouraged, doubtful, possible, probable, and safe'. Their later achievement in the school was then studied. The results obtained were quite interesting, and a considerable degree of success was shown in the final analysis. Much prestige was established for the tests as a result of the study.

The failure of the experiment to validate the measures however, is pointed up by Mursell in that the factors of the tests themselves were not isolated from the intelligence test which was administered, and it is impossible to indicate how much of the success of the experiment can be attributed directly to the values assigned that item. The result is that the experiment cannot claim scientific validation of the test battery itself without the factor of the intelligence test included.

The Kwalwasser-Dykema Tests, usually called the K-D Tests, consist of ten parts, each filling one side of a ten-inch record. In addition to the items listed in describing the Seashore measures (quality being

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88. Stanton, Hazel, "Measurement of Musical Talent: The Eastman Experiment", UNIVERSITY OF IOWA STUDIES, Iowa City, 1935.

substituted for timbre) there are tests of tonal movement or resolution, musical taste, and tonal imagery of rhythm and pitch. The latter two tests, in addition to measuring tonal and rhythmic discrimination, measure the child's ability to decide whether the differences heard are properly presented in the music notation printed on the test sheet. They thus furnish an indirect measurement of music reading ability.

The K-D battery was published in 1930. In comparing the K-D battery with that of Seashore, Mursell says:[89]

> "In the case of both test batteries their power of predicting success in such types of musical behavior as sight-singing, instrumental performance, and the like is very slight. In other words, the psychological abilities which these tests reveal are not important ingredients of musicality."

Mursell says that if we consider all the psychological influences which determine a person's success in sight-singing, the factors measured by the K-D battery contribute about 18 per cent, general intelligence contributes about 7 per cent, and influences which are undetermined and about which we know nothing definitely, contribute about 77 per cent. Again, he points out that the reason these tests fail to predict success in musical behavior is that they deal so largely with sensory capacities.

Quite in contrast with the Seashore and Kwalwasser-Dykema tests is a new paper-pencil test of musical talent, the DRAKE MUSICAL MEMORY TEST. It does not measure acquired information or progress in music as achievement tests attempt to do, but purports to measure 'capacity' for musical achievement as the so-called intelligence test measures capacity for school achievement. In its essentials it is another test of musical memory. The test itself is designed for use with any group, of any age, with or with-

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89. Mursell, PSYCHOLOGY OF MUSIC, op. cit., p. 323f.

cat musical training. It can be given to eight year old children. A twenty-five minute testing period is required for each form taken singly. If Forms A and B of the musical scores for the melodies are used for the sake of additional reliability, a forty minute period is required.

> "Drake does not consider this to be a test of musical achievement, but of musical talent, of which he believes memory or melodic retentiveness to be an important indication. There are considerable arguments in favor of this position. Memory items have been widely used in tests of intelligence. Feats of memorization and retention recur in the biographies of great musicians. And Kate Gordon has shown that there are enormous differences in the memory performance of those who use 'musical' and 'unmusical' methods. Drake has been able to report fairly high correlations between scores on his test and global criteria of musicality."[90]

Similar in philosophy to the Drake tests is one by E. Thayer Gaston, called A TEST OF MUSICALITY.[91] It proceeds from the theory that prediction of musical scores must be made on a basis that is associated with the actual musical situation rather than in connection with isolated sensory capacities. It is particularly apt for the school music situation in that it takes into account the interests and backgrounds of the individuals, and is useful for the musical director in search of talent in the schools. Like the Drake tests, it is primarily melodic, and calls for retention of tonal patterns and other musical figures, both rhythmically and melodically.

> "Although this test may be used elsewhere it was primarily designed for use in schools where the music teacher or administration seeks data regarding the musical capacities and abilities of the pupils."

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90. Mursell, PSYCHOLOGICAL TESTING, Longmans, Green and Co., New York, 1948. p. 235.
91. Gaston, E. Thayer, A TEST OF MUSICALITY, Stroop Music Company, Kansas City. 1944.

> "The validity of this test rests upon the relationship between the teacher's evaluation of the musical personality of the pupil and that pupil's score on the test. All of the music teachers whose pupils participated were asked to evaluate numerically each of their pupils.....these evaluations were made and recorded before the test was given. After the test was given they were compared with the scores. The coefficient of validity obtained from this procedure was .66. The coefficient of reliability obtained by the Split-Half Method was .91."

There are a number of standardized tests in the field of achievement in music. Jacob Kwalwasser, whose work in this area is notable, divides the musical achievement test into three categories:[92]

1. Learning or knowledge tests
2. Appreciation or attitude tests
3. Performance or skill tests

Kwalwasser continues:

> "All achievement tests are learning tests. The more training one receives the more one should earn on achievement tests. Theoretically this is true, but tests often reveal that teaching and learning are not reciprocal terms, for teaching does not always result in learning. All achievement tests are group tests for which age or grade norms have been or may easily be computed. In a definite way, scores earned on achievement tests correlate with both age and intelligence."

Neither the achievement test nor the aptitude test alone gives a complete picture of one's musicianship. The aptitude tests must be looked upon as giving a measure of one's musical promise, whereas the achievement tests give a record of what one does with his native capacity. Frequently, individuals are found who are only average in native capacity ranking as superior performers because they have capitalized to the fullest extent on their comparatively meager endowments. Their work habits may be

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92. Kwalwasser, Jacob, TESTS AND MEASUREMENTS IN MUSIC, C. C. Birchard, Boston, 1927. p. 33.

excellent; their interest may be keen; their will to succeed and their devotion to music superior. These traits are not measured directly by aptitude tests and are therefore not detected, although they are measured, indirectly, by achievement tests.

A brief survey of some of the more important tests of musical achievement will serve to illustrate the general character of these measures. The Beach MUSIC TESTS were issued in 1930 (a previous test was constructed by Beach in 1920) by the Kansas State Teachers College in Emporia, Kansas. Various items are presented in musical notation or words and the students or subjects are asked to select the correct answer from three or more printed choices. The eleven parts of the test deal with:

a. Knowledge of music symbols
b. Recognition of Measure
c. Tone direction and Phrase similarity
d. Pitch discrimination
e. Recognition of different pitches as related to syllable names without notation
f. Rhythm, note values within the beat, within the measure
g. Staff notation as related to printed syllable names
h. Correction of staff representation of a heard melody, inserting of time signatures, and naming titles of familiar songs printed in notation
i. Writing of syllables and pitch names
j. Writing of key signatures
k. Matching names of composers and artists and brief characterizations of them

Norms are available for grades III through VIII separately, and high school as a unit.

The Gildersleeve Test was issued in 1933 by the Bureau of Publications, Teachers College, Columbia University. There are five parts; four in the test proper and one in a preliminary section which is not a test, but which gives some valuable background material. The first of the four

test portions has to do with knowledge about how instruments are played; the second, with music notation; the third with musical terms, composers, and compositions; and the fourth with the ability to identify familiar songs from the printed notation. The fifth, or additional section, on the first page seeks to ascertain something of the child's attitude toward music and various aspects of teaching. The test, though short--it can be given in about twenty five minutes--produces a surprising amount of information. Norms are available for grades IV through the high school.

The HUTCHINSON MUSIC TESTS are published by the Public School Publishing Company, Bloomington, Illinois, and appeared in 1924. Intended for grades VII through XII, they bear the title, SILENT READING AND RECOGNITION, and consist of the musical notation of 24 different musical compositions from which a phrase or two of the melody is presented. The task is to select the proper identification from a list of eight song titles printed below. The 24 items are divided into six groups, with a separate list of titles for each group.

In 1936 the Knuth ACHIEVEMENT TEST IN MUSIC was issued by the Educational Tests Bureau, Minneapolis. It is intended to measure the recognition of certain rhythmic and melodic aspects. Ten tests of four-measure melodies are handed to the subject in printed form. Each melody in a set begins with the same two measures but has a different closing two measures. The subject is to decide from hearing which of the four possible endings has been played. This set of tests is intended for use in grades VII through XII.

Another of the older achievement tests, published by the Public School Publishing Company of Bloomington, Illinois, is the TORGERSON-FAINSTOCK MUSIC TEST. Part 'A' tests theoretical knowledge. Part 'B' tests

ear training, and consists of four tests, namely:

1. Writing of syllable names of 12 exercises from aural dictation
2. Writing time signatures and applying bars for incomplete notation of four given melodic fragments
3. Detecting both pitch and time errors in notation
4. Writing notes on the staff from dictation

Modern music supervisors criticize it mainly because of the unduly large amount of emphasis given to the writing of music, a practice which many supervisors consider an inexcusable waste of the pupil's time.

The Kwalwasser-Ruch TEST OF MUSICAL ACCOMPLISHMENT was one of the early tests of some note, and was published by the State University of Iowa, Iowa City in 1924, and was revised in 1927. "The test measures knowledge of school music from the fourth to the twelfth grades inclusive."[93] The tests are:

1. Knowledge of musical symbols and terms
2. Recognition of syllable names from notation
3. Detection of pitch errors in the notation of a familiar melody
4. Recognition of time errors in the notation of a familiar melody
5. Knowledge of pitch or letter names of bass and treble clef
6. Knowledge of time signatures
7. Knowledge of key signatures
8. Knowledge of note values
9. Knowledge of rest values
10. Recognition of familiar melodies from notation

Kwalwasser reports a coefficient of reliability of .97 for the test as a whole. Standardization was based upon the results made by 5,414 children in several cities of the United States.

Another test by Kwalwasser is his TEST OF MUSIC APPRECIATION. It was issued in 1927.

> "The test measures factual knowledge of music and is intended for use in high schools and colleges where

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93. Ibid., pp. 65-73.

music appreciation courses are offered. It consists of 9 separate tests, measuring the following subjects:"[94]

1. Classification of artists
2. Nationality of composers
3. Composers of famous compositions
4. Classification of composers by types of compositions
5. General historical and biographical knowledge
6. Production of tones on orchestral instruments
7. Classification of orchestral instruments
8. General knowledge of instrumentation
9. Knowledge of music structure and form

It may be noted that this is the first of the achievement tests discussed thus far which has significance for the college level, and is intended partly for those who have had courses in 'music appreciation'.

Tests of musical performance are fewer among the standardized measures. It is logical that in most cases, a faculty or teaching staff would devise certain standards of musical accomplishment which they would expect of a student in performance on various instruments or in vocal production. A private teacher or a public school teacher might adopt his or her own list of values which would be expected as goals of accomplishment in musical performance.

Scientific appraisal of musical performance has been conducted in the research of Carl Seashore at the University of Iowa. The rendition of piano and violin music and of artistic singing have been studied with the aid of such techniques as the 'photogram'.[95]

E. K. Hillbrand has devised a SIGHT-SINGING TEST, which was published in 1923 by the World Book Company, and furnishes the teacher with a means of determining by precise objective methods the ability of fourth, fifth and sixth grade pupils in the mechanics of singing. The test is in

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94. Ibid., pp. 90-98.
95. Seashore, Carl E., PSYCHOLOGY OF MUSIC, McGraw-Hill, New York. pp. 200-285.

the form of a four-page folder containing six songs. The pupil is permitted to study the songs a few minutes and is asked to sing them without help or accompaniment. The various errors made by pupils while singing are recorded on a copy of the songs. Nine different kinds of errors are possible:

1. Notes wrongly pitched
2. Transpositions
3. Times flatted
4. Times sharped
5. Notes omitted
6. Errors in time
7. Extra notes
8. Repetitions
9. Hesitations

According to Kwalwasser,

> "The test might have been improved by incorporating the sight singing problems found in the intermediate grades. Naturally a test which purports to measure intermediate grade sight-singing proficiency, should present intermediate grade sight-singing difficulties. The grading system is rather cumbersome and imposes a task on the teacher that few will be able to execute. Nevertheless, if the test is to be diagnostic it must be thorough, regardless of the number of errors that require checking."

Kwalwasser reports another test of individual singing by Mosher, which consists of 12 exercises involving the more frequently met problems in school music, arranged in order of progressive difficulty as judged by Mosher.[96] This test was not intended for general classroom use, but it never can be standardized, for the simple reason that the judging system is impractical for general use.

Standard tests of sight-singing ability have been devised by Gaw (1928), Salisbury and Smith (1929) and others. The scores are a summation of errors in pitch and time, as well as omissions, hesitations, repetitions,

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96. Ibid., pp. 105-106.

and extra notes. Experienced judges are needed for careful examining.[97]

It has already been indicated that there is a sparsity of material available regarding the prognosis of musical talent at the college level, and particularly at the graduate level in music education. Already mentioned, however, has been the notable study made by Hazel Stanton at the Eastman School of Music.[98] Other recent studies at this level will be of interest.

In 1938, Lucille Emerick administered several tests to adult education classes in music in New York City:[99]

1. Musical Achievement test of Glenn Gildersleeve
2. Questionnaire prepared by the investigator to learn the subject's education, occupation, incentives, previous musical experience, field of interest, application, background and outside interests.
3. Performance rating in piano, voice, violin, and such, rated on: technique, tone quality, interpretation, phrasing, memory and posture.
4. Intelligence test: Hermon-Nelson Test of Mental Ability for College Students, Form B
5. Seashore Measures of Musical Talent

From the results, she concluded that probable success in music achievement or in music performance may be forecast for adults to a certain extent. The intelligence test and the Seashore test were the best predictive measures.

A study was made by Elizabeth Taylor at the University of Cincinnati, reported in 1941.[100] This study is an attempt to evaluate a battery of musical and psychological facts as a basis for prognosis of:

1. Success in a college of music
2. Success in music as a profession

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97. Greene, E. B., MEASUREMENTS OF HUMAN BEHAVIOR, Odyssey Press, New York 1941. p. 433.
98. See p. 47.
99. Emerick, Lucille, "Predicting Success in Music Education for Adults", UNPUBLISHED THESIS, NEW YORK UNIVERSITY, 1938.
100. Taylor, Elizabeth M., "A Study in the Prognosis of Musical Talent", JOURNAL OF EXPERIMENTAL EDUCATION 10:1-28, 1941.

A five-year program was conducted at the college of music of Cincinnati from 1930 to 1935, employing the Seashore Measures of Musical Talent, the K-D Music Tests, the Kwalwasser Tests of Melodic and Harmonic Sensitivity, the Measures of Musical Background (an original test devised for experimental purposes), and the Detroit Advanced Intelligence Test, Forms V and W.

The data used determining the validity of the tests included marks of students in certain college courses in music, and judgments by competent persons upon the professional success of the students as musicians.

Grades in four courses were used as criteria:

1. Dictation
2. Sight singing
3. Harmony
4. Music history

Findings included:

1. Correlations of the test with each of the four college courses:
   a. Success in dictation is best predicted by three tests:
      (1) Background Discrimination Mode ($.645 \pm .033$)
      (2) K-D Pitch Imagery ($.593 \pm .036$)
      (3) K-D Tonale Memory ($.445 \pm .044$)
   b. Success in sight singing is best predicted by one test only, BACKGROUND DISCRIMINATION OF MODE ($.507 \pm .043$)
   c. Success in harmony cannot be predicted well at all with these measures.
   d. Success in history of music cannot be predicted with these measures.
2. The predictive value of the four batteries of music tests:
   a. The Seashore tests correlate highest with dictation marks, the lowest with history of music marks, but no coefficient is higher than .30.
   b. The Kwalwasser tests indicate little relationship with other criteria.
   c. The K-D tests correlate highest with dictation marks and lowest with harmony marks.
   d. The Background tests correlate highest with dictation marks and lowest with history of music marks.

3. The predictive value of the intelligence test:
   a. General intelligence indicates substantial predictive value for success in dictation. (.430)
   b. General intelligence possesses slight predictive value for success in harmony. (.299).
   c. General intelligence possesses negligible predictive value for success in history of music. (.021).

"On the basis of this data, it is safe to say that no single measure should be used to predict success in college; a combination of music tests (Background Discrimination of Mode, K-D Pitch Imagery and Tonal Memory) with an intelligence test (Detroit Advanced Intelligence Test) may offer a prediction sufficiently accurate to be practical."

Irving Cheyette describes a testing program for screening college music freshmen at the State Teachers College at Indiana, Pennsylvania.[101]

"Since colleges are now deluged with applicants for admission owing to the G.I. Bill and the elimination of the draft of eighteen year olds, they are in a better position to raise the entrance requirements in terms of scholastic and special aptitudes. This must be done in order to insure that mediocre talent is not being encouraged to enter the music teaching profession. Many pressures will be brought to bear upon administrative authorities to admit individuals who are incapable of successfully pursuing college work. Some objective battery of tests and interview procedure must be devised particularly in the special aptitude field. These tests must provide a fairly accurate measurement of abilities and aptitudes that will convince both applicant and their parents of the validity of rejection or acceptance for college work."

At the State Teachers College in Indiana, Pennsylvania, these steps are used in screening the college freshmen applicants in music:

1. Filing of application for college entrance including the principal's report on academic standing. If the student is not in the upper half of his class, he must take a scholastic aptitude test and have an IQ of 110 or more. His medical report must show good health.
2. At a personal interview, his freshman Profile Chart is filled out. This gives information about musical activities in and out of high school. Other questions are asked about his musical interests.

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101. Cheyette, Irving, "Screening College Music Freshmen", EDUCATION 67:169-173, 1946.

3. A performance test is given for either vocal or instrumental players.
4. A performance test is given in sight reading.
5. An ear training test is given in rhythm.
6. A personality rating is established.
7. A musical aptitude battery is given, which includes:
   a. Strouse Information Test.
   b. Seashore Records (Series B) Pitch, Tonal Memory, Timbre.
   c. Song recognition from the Strouse test
   d. Form 3 of the Torgerson-Fahnstock Test
   e. Knuth Achievement Test for Tonal Movement
   f. Kwalwasser-Dykema Test for Tonal Movement
   g. Drake Musical Memory Test, Form A
8. A questionnaire is then sent to the supervisor of music in the home community of each candidate.

The screening process is a continuous one, however, and the student is evaluated against his actual achievement record each semester. Academic requirements for sophomore and junior standing are further hurdles that each student must meet along wi th performance requirements in piano, voice and instrumental playing. A 'C' average in all theoretical methods courses must be maintained.

Another predictive study, but at the high school level is reported by Sylvia Bienstock.[102] This is of unusual interest, however, because it involves students at the music and art high school in New York City, and thus deals with a special group. 122 boys and girls served as the subjects. These measures were administered:

1. A performance test, administered and scored by members of the faculty.
2. Amount of previous training in music
3. Elementary school record, including IQ and scholastic grades.
4. Five sub-tests of the Seashore battery.

These measures were used as criteria for success:

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102. Bienstock, Sylvia F., "A Predictive Study of Musical Achievement", PEDAGOGICAL SEMINARY 61:135-145, 1942.

1. The average of all the final marks received in academic courses during six terms
2. The average of music theory grades
3. The mark on the state regents examination in music
4. The average grade over a period of four semesters in voice or instrumental music.
5. The average mark for participating in choral or orchestral classes, one or two periods a day for six terms.

Some findings:

1. The K-D tests were too unreliable to be used for the prediction of individual success in music.
2. There was a positive correlation trend between the K-D tests and success in theoretic and applied music, but it was low.
3. Teachers marks were used as criteria and had adequate reliability for use as measures of achievement.
4. Marks in applied music were generally prognosticated with much less accuracy than were marks in theoretic music.
5. The most effective measures for the prediction of success in theoretical music were the IQ, and the age of the students, while the least contributive was the extent of prior music training and the performance test score.
6. Instrumental students, as a group, were superior to the vocal students in all the predictive measures, and also in all directly comparable measures of achievement.
7. The measures were effective for predicting failure rather than success. Low scores almost certainly predicted poor achievement but high scores failed to predict high achievement.

The lack of substantial evidence regarding the prognosis of musical success in the college and graduate field, with the exception of a few studies such as the one just reported, is significant. The absence of a genuine device for assisting in the prediction of graduate success in music education, coupled with the obvious need for such a measure as indicated in the first chapter shows the reason for the present investigation quite clearly.

The development of a testing technique in this particular subject area and at the graduate level will undoubtedly be of inestimable service to the administrator or educator whose task it is to determine who should

continue his work in music education beyond the undergraduate years, and whose task it is to guide, direct and advise that student in the selection of courses.

From a study of the preceding measures and techniques, it may be concluded that several factors will contribute to the predictive technique. The need for a measure of general intelligence and aptitude for learning is of extreme importance. This need may be met by means of an efficient test of this type, specifically directed toward the graduate student. A measure of achievement, that is, the background information and status of the individual who prepares for work at the graduate level is of paramount importance for purposes of guidance and even of possible elimination or alteration of proposed major areas of study in the graduate school. For the music major, there should also be a measure of musical performance, manifested in the ability to carry on a certain level of musicianship in some applied music form, either vocal, instrumental, or possibly in the field of theory--composition, etc.

It is the purpose of this study to contribute the second of these needs to the measurement situation in the form of an achievement test, designed to meet the needs of the guidance counselor or administrator who must advise the prospective candidate for a graduate degree.

CHAPTER III

THEORY OF ACHIEVEMENT TESTING

Characteristics of an achievement test.

The characteristics of the various types of educational tests are manifested in the achievement test. For the achievement test of a standardized nature (one for which there are norms), these characteristics become very important.

The achievement test is designed to measure skills and information which have been learned, either in particular courses of training or from experience elsewhere. In the school situation, there are achievement tests for nearly every type of subject at many grade levels, and of a standardized nature. From the simple, teacher-made test to the most widely used measure of nation-wide prestige in any subject, there is a wide variety of differences in scope, makeup, method and such, but each is related to the other in one degree or another on the basis of these fundamental characteristics. The more nearly the individual test adheres to certain of those characteristics, the more valuable it becomes as an educational measure.

Standardized tests do not, in and of themselves improve the instruction. They merely reveal the situation, whether the desired end is prognosis, diagnosis or what. One of the most important of the characteristics of a good test is validity. By validity is meant the degree to which the test or other measuring instrument measures what it claims to. In a word, validity means truthfulness. Without demonstrated validity, the test has little use, for it is not measuring the qualities or traits that

it claims to measure. A distinction should be made between statistical validity and curricular validity. Sometimes the term 'face validity' is also used to distinguish between statistical validity and other kinds.

Statistical validity refers to the mathematical processes for determining the degree to which the test agrees with, or correlates with some criterion which is set up as an acceptable measure of the thing in question. Curricular validity refers to the extent to which the content of the test is really typical of the content of the course. Face validity clearly means that the measure has the general appearance of being valid. The items on the test are obviously related to the subject in question when the face validity is termed to be acceptable, but may not be discriminating as to level of performance.

The discovery of an adequate criterion for determining validity in a test is an important function of test development. In relating the results of an individual's responses to an achievement test in the field of prediction of scholastic success, such criteria for validation might be represented by that individual's actual academic grades or honor points, by an instructor's rating of the individual in that field of endeavor, or by some criterion represented by a similar test or battery of tests in that same field. A combination of these or of some of them may further strengthen the validating technique, or the inclusion of several expert opinions as to the individual's ability in that field might be a strong comparative index for validation of the measure.

Other methods of validation are related, such as the opinion of the test author, correlation between parts of the test, textbook analysis, or correlation with college entrance examination scores. There is a wide diversity of practice in this matter, and in many cases, the opinion of the

author is the only method used.

One important aspect which must be met with caution is the necessity that the criterion itself be valid. For example, it would be unwise to use as a criterion another test in that field which itself was not known to be valid. Even the use of course grades and honor points is subject to close scrutiny. A major bane of educational prognosis is the comparatively low dependence which can be placed upon such criteria as marks, whether in high school, college or graduate studies. The chief factors which tend to reduce stability of educational criteria are variations, first in students' actual performance, and second in subjective estimation thereof by instructors.

The fact that a variety of personal factors enter into the acquisition of school marks does not make the situation any less difficult. Nevertheless, if the objective of a test is to assist in the prediction of success in a school situation, and that situation is characterized by the issuance of grades, certainly those marks will fill an important need in the development of a criterion for test validation.

A second important characteristic of the achievement test is that of reliability. By reliability is meant the degree to which the test agrees with itself. If the test will continue to measure, on successive occasions what it has measured previously and with approximately the same results, it is assigned a relatively high degree of reliability. If two forms of the same test are administered, it is to be expected that the results will agree very closely, other factors being equal.

There are several useful methods for determining the reliability of a test. One such is that of providing two equivalent forms of the test. If, after presentation of both forms to the same group of students or indi-

viduals, with only a short interval between them, the results are very similar if not exactly so, the results will indicate a high degree of reliability. If agreement is perfect, the correlation between the two forms is said to be 1.00. If there is no consistent relationship at all, this correlation is .00.

Another method of establishing the reliability of a test is that of the re-test method, in which the same form is presented to a group, and then is re-administered after a certain period of time, whether hours, days or weeks. The test results are compared and a correlation is calculated between them, allowing for the factor of practice.

A third method is the split-half method, which involves dividing the test into halves. It may be used when a single form of a test has been administered only once. The two halves of the test are most frequently composed of the odd-numbered items and the even-numbered items. A score on just the odd-numbered items and a score on the even-numbered items are obtained. The correlation between the scores on the two parts can be regarded as an estimate of the reliability of a test half as long as the original test. From this estimate of the reliability of half the test, the reliability of the entire test can be estimated by use of the Spearman-Brown prophecy formula. There are other ways of splitting a test into halves, but each method must produce equated tests as nearly as possible.

Each of these three methods has its own advantages and disadvantages. The 'equivalent' forms method has the advantage of enabling administration at the same testing period, and does not involve the practice element in the retest situation. The difficulty lies in the assumption that the two halves are comparable. The retest method, at first glance, seems to have the distinct advantage of relating two tests which are exactly

the same, to each other. A closer observation, however, points up the factor of variability which accompany the retest situation. Both the variability of the test and the variability of the pupil may enter in. If the test is long, to avoid fatigue and boredom, some time must elapse between the two trials. This delay is likely to produce other variables. The pupils may discuss the test between trials, do extra study, or do other things that may effect a change in the status of their knowledge. In addition, their personal physical and mental conditions change from day to day, and even from hour to hour. It is also difficult to maintain comparable testing situations between the two administrations.

The split-half method makes the assumption that all of the items are measures of a single factor, such as the ability to perform routine numerical operations or the ability to visualize spatial relations. If more than one factor is involved, this method gives underestimates of the reliability coefficient. The average difficulty of the two halves should be equal as well as of equal variability. The Spearman-Brown formula is used to estimate the probable reliability of the test when such allowance is made for the fact that actually only one half of the test is involved. This formula requires the use of 'chance' halves of the test, and not selected halves. The Kuder-Richardson formula has been developed to overcome the disadvantages of these three methods. It requires only one administration of the test, and has the advantage of yielding a unique value as the estimate of reliability, depending upon the assumptions made and thus upon the particular formula used.

It should be pointed out that although the test reliability increases with the increase in the number of items used, there is a point at which this increase is so negligible as to discount further addition of

items as being unnecessary.

A third characteristic of an achievement test of a standardized nature is one that is difficult to separate or isolate from the others. It is objectivity. By the objectivity of a measuring instrument is meant its freedom from errors due to personal feeling and bias. A high degree of objectivity is regarded as very desirable. It is fairly simple to devise a test which contains items having only one correct response. This makes scoring by use of a 'key' quite easy, and thus eliminates personal opinion. However, the objection is that construction and administration of such test items tend to limit any manifestation of the individual's ability to think or to reason beyond a certain limited extent. Furthermore, there are instances in which the answer that is correct for one group is not the most obvious answer for another. For example, the following test item is of a multiple-choice type in which the word 'crowd' is to be associated with one of the selective words which follows:

Crowd--closeness, danger, dust, excitement, number

The word 'number' might easily be determined as the correct answer, and yet, to many the word 'crowd' is as easily associated with any of the words provided. The Indian child might well think of 'dust'; the city child might conclude that 'danger' or 'closeness' are the best responses. This is a constant danger which must be observed and about which one must constantly forewarned.

It is possible for an essay-type examination to have a relatively high degree of objectivity when rating scales or standards for grading and for the test answers themselves are provided. However, an examination which may be scored by use of a key is apt to have a higher objective rating than one of the essay type, for in the former it is assumed that no personal

opinion is injected into the situation after the initial decision is made in regard to the correct answer.

A fourth characteristic of the standardized achievement test might well be described as usability. This relates to the practical aspects of the test situation and includes several factors:

1. Ease of administration
2. Ease of scoring
3. Ease of interpretation and application
4. Low cost
5. Proper mechanical makeup

From the standpoint of administration, group tests are generally easier to handle than individual tests. Complicated instructions for administration and scoring make a test such as the Stanford-Binet a more difficult one to use. In the case of achievement examinations, however, tests are generally of a group nature. Directions for administering a test should be clear, both for the examiner and for those who are taking the test.

Ease of scoring is related to factors such as the availability of scoring keys and directions, and upon the objectivity of the test. The method for recording answers on paper also enters into the simplicity of scoring. Modern tests of a standardized nature are often available on forms which use a mechanical scoring device.

Ease of interpretation and application depend to a great extent upon the manual which accompanies the test. Derived scores should be readable in comparison with norms and standards without elaborate calculations. Norms should be provided on the basis of factors such as age, grade, length of time in studying the subject and so forth.

The cost of administering a test is clearly an important factor. Some tests or batteries of a national nature are relatively expensive,

costing several dollars per copy. Homemade tests, often duplicated or mimeographed may be quite inexpensive. Many standardized achievement tests cost only a few cents per copy. Although cost should not be made the primary factor in selecting a test, with other things being equal, the more economical of two tests would certainly be desirable in most school situations.

Clearness and readability are important characteristics of a good test. When time is a factor in the testing program, it is important that the printing or typing on each test form be perfectly legible for otherwise the individual is handicapped to some extent. Illustrations, pictures, diagrams, and such must be clearly set forth.

Four major characteristics of a standardized achievement test have been discussed. They are validity, reliability, objectivity, and usability. In addition there are several factors which are of additional interest in connection with the study of this type of examination.

The term 'standardized' itself implies one thing in particular, and that is the presence of a set of norms. Associated with this terminology is the word standards. However, the terms are not identical. The term 'standard' implies a goal or an objective to be reached. When an informal test has gone through the process of standardization it differs from the original class test in four essential respects:[103]

1. The content has been standardized. Item difficulty and value have been studied carefully by competent authority and experimentation.
2. Method of administration has been standardized.

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103. Ross, C. C., MEASUREMENT IN TODAY'S SCHOOLS, Prentice-Hall, New York, 1947. p. 282.

Directions have been worked out, with time limits, where applicable, and so forth.

3. The method of scoring has been standardized. Rules have been formulated and keys have been provided.
4. Interpretive processes have been standardized. Tables of norms are available for interpreting the various scores made on the test. These norms are average scores (usually medians) which have been made by large numbers of persons over a wide geographical area, representing an adequate sample of individuals or groups.

The methods for standardizing a test may be on the following order:

1. The test is tried out on an experimental group, usually called the standardization group.
2. The scores made by persons in this group are classified in one way or another.
3. Then, on the assumption that the standardization group represents a true sample of a much larger population with reference to the trait or function being tested, it is assumed that the classifications arrived at represent levels or amounts of the function or trait as they appear in the population.

In general, it may be concluded that as one thinks of standardized tests, one thinks also of a test which possesses norms for grade, age or other such criteria. And so, norms are thought of as characteristic of standardization.

The discussion of characteristics of standardized achievement tests should include a survey of the types of tests and items that may be used in that particular method of measurement.

It is not necessary to enter into a discussion of the merits and criticisms of the essay-type examination in this particular investigation since the standardized examination will deal largely with the Limited-Response type of written test in contrast with the Free-Response Type. The latter is characterized largely by three types:

1. Essay type
2. Short-answer
3. Unrestricted completion

Since objectivity is more difficult to obtain in the types represented by the above list, it is logical to assume that the standardized achievement test, and particularly the kind which relates to the present study will be comprised of items which are not typical of this list.

The short-answer type of item is one which requires a single word, short phrase, number or such to answer a question. It is always difficult to know just which answers to accept and which not to accept, however. Completion items are those in which a statement is presented with a critical key word or phrase missing, and in which the subject is required to recall the missing part. Here again, there may be several correct words which would make the sense correct, or at least plausible. Reliability is difficult to obtain in this case.

Several types of Limited-Response items are in common usage and will be discussed subsequently. They are listed as follows:

1. Matching items
2. Arrangement items
3. True-False items
4. Multiple choice items

Matching items are represented by two columns of items, from which the student is to select those which are paired, one from each column. One item in the first column is logically associated with an item in the second column, and it is the task of the individual to discover this association and indicate the matched pair on the test blank. To prevent guessing there are usually more items in one column than in the other. Many types of learning involve such comparisons: events and dates, events and persons, events and places, terms and definitions, foreign words and English equivalents, rules and examples, and so forth.

Thus, the matching test is a convenient form of exercise for measuring such learning. However, it is not well adapted to the measurement of understanding, and it may include irrelevant clues to the correct response. It is somewhat time consuming for the pupil, too.

Arrangement items are those in which a number of statements are presented in random order, and the subject rearranges them in a given way. Steps in a sequence of events or procedures may be re-arranged by the subject in order of occurrence or performance. Causes may be re-arranged in order of importance in bringing about a certain effect; chapter headings of a book may be re-arranged in the order of appearance in the book. A major difficulty with this type of item is in scoring each possible re-arrangement according to the extent of its deviation from correct arrangement.

True-False items are also known as Alternative-Response, Right-Wrong, and such. The subject is presented with a number of statements, which he labels separately as being true (right) or false (wrong). It is one of the simplest types to construct, and it is applicable to a wide range of subject matter. It enables high objectivity of scoring, and it has a wide sampling characteristic. It is not well-adapted to educational diagnosis, however. The negative-suggestion effect and the factor of guessing are often pointed out as limitations of this type of test. A correction formula is often used with this type. The number of wrong responses is sometimes subtracted from the number of right responses to produce the number of points allowed. A further difficulty lies in the fact that the statement must be definitely right or wrong, and must allow no doubt in the mind of the subject or of the administrator and test maker. There must be no qualifying clauses, and such unless they

provide for a specific response to the statement. The test should be relatively long, containing at least seventy-five items unless the test covers a very narrow range or is used for instructional purposes only.

Multiple-Choice items are those in which the subject chooses the best answer of a number of possible answers to the question. Of the three to five (or more) repenses available to the subject, only one must be correct, and yet the others must appear to be so, yet remain above the possibilities of argumentation as to their correctness. The 'wrong' alternatives must definitely be poorer choices than the best answer if the question is of the type in which the 'best' answer is asked for, although other responses may be reasonable to some extent. Items such as these are generally checked by experts for accuracy. One advantage is that this type of item permits the use of machine-scorable test sheets. It is an item which is adaptable to almost every type of test situation, and is generally regarded as the most valuable of all test forms. It permits the use of reasoning and understanding powers as well as recognition or recall. Unusual care must be exercised in the construction of multiple-choice tests in order to avoid the inclusion of irrelevant or superficial clues.

Of the four types of items reviewed above, the Multiple-Choice seems to have a distinct advantage over the others.

Greene presents an interesting summary of the merits of various types of items:[104]

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104. Greene, op. cit., p. 111.

TABLE IV

MERITS OF TYPES OF ITEMS

(1 is the highest rank; 2, next highest; and 3, the lowest)

		1	2	3	4	5	6
1.	Easy to compose	2	2	3	2	2	1
2.	Easy to understand directions	1	1	1	2	2	1
3.	Short time per item	1	3	1	1	1	?
4.	Little printed space per item	2	2	2	1	3	1
5.	Easy to score; no partial credits	1	2	1	1	1	3
6.	Free from chance success	3	1	1	1	1	3
7.	Complexity of thinking	?	?	?	1	1	1
8.	Question clear, not a puzzle	2	3	1	1	1	2
9.	Dependence on recall not recognition	3	2	3	2	2	1
10.	Analysis of results*	3	2	1	2	2	1

*Evidence showing why the examinee failed; types of errors or omissions.

Columns above are numbered:

1. True-False
2. Completion
3. Multiple-choice
4. Matching
5. Rearrangement
6. Essay

One other statement is pertinent. A combination of various test item types may be included to fit the needs of different aspects of the testing program.

Another factor to be considered in the formulation of a standardized achievement test is the problem of Speed Tests versus Power Tests. Basically, speed tests or rate tests are measures at a given level of difficulty, and a time limit is set so that no pupil is able to complete

all of the items. It must be recalled that when any subject submits a perfect score on any examination, it is not possible to ascertain the upper limits of that student's ability. It is not known how much more he could have done. Such a test implies that educational objectives are to train children to extend their power over a larger and larger area of content of constant difficulty. There is now a distinctive tendency away from the development of tests which are definitely rate or definitely power tests in their basic characteristics.

Power tests, or the so-called scale tests measure a pupil's ability to do more and more difficult exercises within a given field or subject matter. In such tests achievement is expressed in terms of the difficulty of the exercise or activity which the pupil is just able to perform.

Several arguments are presented against the speed test. The fact that speed tests are not typical or representative or the life situation or the job is one. However, it cannot be denied that speed and accuracy are characteristic of many situations that confront the individual from time to time. Speed and accuracy are known to have a close relationship, psychologically. Speed tests are said to penalize many individuals who tend to become panicky or nervous under the stress of a 'timed' situation. These same individuals may have a much better command of the subject matter or material than they are able to show under pressure, but they must be able to produce in terms of speed in many school or classroom situations.

Time limits are generally set on power tests, as a matter of fact, but the emphasis is less on the actual time limit than in the rate or speed test itself. The allotment of time depends upon the purpose

of the test and upon the ability and experience of the pupils. In general achievement tests, it is often suggested that at least 75 per cent of the subjects should have time to consider all the items in each section of the measure.

If test items are scaled for difficulty, with increasing difficulty being characteristic of later questions, it is important that the subjects have an opportunity to sample those sections if the test is to be worthwhile. In pre-testing, especially, it is important that time limits be sufficiently long, for otherwise, it might be concluded that many items which are deemed difficult were not reached at all because of their position in the test. Hence, care should be taken to grade difficulty in terms of 'per cent' right among those subjects who succeeded in reaching and attempting these items.

Certainly, it may be concluded that only those time limits which seem reasonable and proper after some experimentation should be levied against the majority of achievement tests. The power test, coupled with a type of timing activity will satisfy the average requirements of a standardized achievement examination.

One final aspect of the characteristics of the standardized achievement test should be discussed. The length of the test has some significance in establishing its worth. It is important that a fairly large number of items be included in an examination. Mention has already been made in regard to the use of the Spearman-Brown prophecy formula for the estimation of the reliability of a test of longer items than those actually in use. At least two obvious factors are involved in selecting the number of items to be used. The length of time desired for the complete examination, and secondly the amount of time required for each

item are both of importance in this decision.

It must be remembered that any testing situation represents an attempt to sample the fund of knowledge or the abilities of the individual. Hence, all the possible questions about a subject area cannot be asked. There must be enough to show the degree to which each subject possesses knowledge or traits in comparison with other subjects. The cost of construction, the amount of time available for administration, and other needs of administering and scoring a test are factors to be considered in limiting the length of a test. The fatiguing nature of a long test is itself an item to be observed, for boredom and fatigue tend to lower the accuracy of results and therefore hamper the presentation of a true picture of the testing situation.

Certain batteries of comprehensive examinations may take more than one day, actually involving several testing periods. Simple, home-made achievement tests or short standardized tests may take as little as a half an hour or less.

The Spearman-Brown formula may be used in some cases in determining the length of a test, but it must be remembered that this implies the addition of items comparable to those involved in the actual test. It has already been mentioned that beyond a certain point, increased length tends to have a smaller positive value, when considering the problem psychologically and administratively.

The characteristics of the standardized achievement test have been surveyed. It may be recalled that four important points evolve in regard to these characteristics:

1. Validity
2. Reliability
3. Objectivity
4. Usability

In addition, other factors such as standardization, type of test items, speed and power tests and test length contribute to the construction of such a measure.

Relationship to intelligence testing.

> "When scores on achievement test batteries are taken as tokens of academic success, coefficients of the magnitude of .8 are ordinarily obtained between intelligence test scores and academic achievement. Correlations between school marks and intelligence test scores are considerably lower, the modal coefficient being between .4 and .5. There are two or three reasons for this discrepancy. Marks are consideranly less reliable than the scores earned on achievement batteries. On the other hand, there are certain factors in common between intelligence tests and achievements tests, notably speed of work and the ability to interpret questions. The correlations between the two tests might be lowered somewhat by removing the time limits from achievement tests."[105]

Crawford and Burnham state that typical correlations with school and college averages and intelligence results generally run between .40 and .50.[106] Feinberg conducted a study to determine the relationship of the intelligence quotient, as described by such intelligence tests as the Stanford revision of the Binet-Simon tests, the Terman-Merrill Revision of the Stanford-Binet scale, and the Wechsler-Bellevue Intelligence tests, to the educational quotient as described by the New Stanford Achievement Tests, Forms V, W, Y, and Z.[107]

In Feinberg's study, 715 children were examined at the Mental Hygiene clinic of the Jewish Social Service Bureau of Detroit, Michigan.

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105. Stroud, James B., PSYCHOLOGY IN EDUCATION, Longmans, Green and Co., New York, 1946, p. 338f.
106. Crawford and Burnham, op. cit., p. 89.
107. Feinberg, Henry, "IQ Correlated with EQ", JOURNAL OF EDUCATIONAL PSYCHOLOGY, 32:617-23, 1941.

These children came from children's homes of various religious denominations, from foster homes, from normal homes, and from institutions for predelinquents. They had attained 3-A grade and had not passed the 10th grade. Their IQ's ranged from 44 to 192. In order to discover whether EQ could be substituted for IQ in individual instances, the population was divided into diagnostic groupings in which those with IQ's under 70 were classified as mental defectives; those between 70 and 79 as borderline; 80 and 89 as dull or low normal; 90 to 109 as normal intelligence; 110 to 119 bright normal; and above 120 as superior.

The correlation obtained on the whole of the 715 persons in the group, in their performance on intelligence and educational tests, do not differ from the relatively high correlations obtained in groups described by other persons. However, when it is broken down into diagnostic groups, there appears to be a negative correlation among persons having sub-normal intelligence, and a substantial correlation among the persons having normal and superior general intelligence. With the group having high normal intelligence there is a slight correlation. Except for the high normals, there appears to be a perceptible rise in correlation with the rise in the IQ. It would appear that the EQ cannot be substituted for the IQ.

Another complication in comparing two types of examinations such as these is the theory, held by some that a large part of the capacity measured by so-called intelligence tests of a general nature is the same as that measured by an all-round achievement test battery such as the New Stanford, Progressive or Modern School Tests. This would imply a higher correlation than actually exists.

The Accomplishment Quotient was devised as a ratio between the

educational age and the mental age of the individual, or between EQ and IQ. A quotient of 100 is considered the goal. Less than that would indicate that the pupil is not measuring up to his capacity. This technique may be worth more when restricted to groups rather than to individuals, however, for it is not an accurate measure or calculation. Other devices have been suggested for the comparison of educational age and the mental age. A simple one is to average the pupil's rank on the two tests. Others use a common denominator such as the percentile score or standard score.

While high correlations between intelligence and achievement may be procured in many cases, it is necessary to proceed with caution in attempting to interchange the functions of the two types of measurement.

Melvin Rigg, in a study made at Oklahoma A & M College discovered that:

> "The correlation between intelligence and first semester's scholarship is higher than those between intelligence and four year's scholarship. This fact is a function of the narrowing range of abilities as the class proceeds toward graduation since the poorer students tend to drop out."[108]

Again, the unreliability of the grading system makes such comparisons of less value than otherwise. However, there is obviously some significance in the relationship between intelligence and success in the school situation, which is representative of achievement, at least to some extent.

It may be concluded that intelligence and achievement are very closely allied, but are separated by contingency or motivational factors, which have been mainly unidentified.

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108. Rigg, Melvin G., op. cit.

Relationship to Aptitude Testing.

Achievement tests are designed to measure an individual's proficiency in a particular area, to predict how well he will perform on the job or in the classroom with little or no additional training other than a brief orientation period. They tell what an individual can do at the time he is tested.

Aptitude tests are designed to predict a person's potentialities; his ability to learn a certain skill or subject area. Both aptitude and achievement tests may emphasize the actual carrying out of an operation. Aptitude tests can be constricted which are very useful in predicting future job performance, even though psychologists are not yet in complete agreement on the question of general intelligence versus specific aptitudes or factors.

With separate tests, the test of knowledge of subject matter is likely to be constructed from too limited a point of view, and tends to emphasize the recall of factual material. An aptitude, in some cases may appear to be little related to the task.

Aptitude is differentiated from skill, which is the ability to perform some given set of responses at a given time: aptitude is the ability to acquire skill under appropriate conditions. Other terms such as 'capacity' and 'talent' may become confused in the definition. Talent refers to a special ability, inferring a high degree of it.

Aptitude and achievement tests are concerned with more or less separate or specific fields of endeavor, rather than with a general average of scholastic work or promise. Both are customarily validated by correlating their evidence with other measures of subsequent attain-

ment in particular types of study; yet they differ in respective purposes. The achievement test is administered after the student has been in contact with the work in the particular field being tested, while the aptitude test is intended to preview what he may attain in that field. Thus, the achievement test is looking backward to a certain extent, while the aptitude test is looking forward. To say that one should look forward with no thought of the past is, of course, unwise. Hence, the achievement test has untold value in assisting in the prediction of the future. Aptitude tests are retroactive in that they sample past learning even for future reference in terms of its novel applicability.

It is dangerous to suggest that a musical aptitude is a specific entity, unrelated to other characteristics of the entire personal makeup. This has already been indicated as erroneous in suggesting that musical ability is a composite of several sensory acoustic abilities rather than a 'gestalt' musical personality. Thus, it is difficult to separate any mental processes, whether they be aptitude and intelligence or aptitude and achievement. Both specific-achievement and general-intelligence measures in one way or another overlap those of the aptitude type.

Neither aptitude nor achievement tests alone give a complete picture of one's musicianship. Aptitude tests must be looked upon as giving a measure of one's musical promise, whereas the achievement tests give a record of what one has done with his native capacity.

It would appear, from the above that both a general intelligence measure and an ability measure in the specific field of musical performance (such as the individual's performance ability on an instrument or in vocal production) should be considered in connection with the achievement examination in making an important decision regarding the predic-

tion of success by any individual.

The use of an achievement examination is one factor in the complete test situation. Its importance is great, and its results can serve in an invaluable manner the needs of the adviser. Its predictive value, however, will be increased measurably by the use of these other measures as well.

CHAPTER IV

CONSTRUCTION OF THE TEST

Selection of subject matter areas.

There is a wide variety of selectivity of course offerings for majors in music education in the graduate schools of this country. The course of study to be followed by any particular student at the graduate level is dependent upon his individual needs and interests. Furthermore, there is some variance between schools as to the general content and emphases of graduate curricula in music education. Consequently, in preparing an examination which may meet the needs of all students and graduate schools, it is necessary to select those general areas which seem to represent the majority of interests.

Work for a major in music education is divided between courses in education, psychology, music education, music history, music theory, and applied music work. Consequently, these are the general areas which are represented in the selection of test items.

For purposes of organization these areas were further subdivided as follows:

1. Education
   a. Educational administration and curriculum
   b. Educational philosophy
   c. History of Education
   d. Music education
2. Psychology
   a. General Psychology
   b. Educational Psychology and Measurements
   c. Psychology of Music
      (1) Psycho-acoustics
      (2) Functional Music

3. Music
   a. History of music
   b. Theory of music, instrumentation, and conducting

Presentation and arrangement of the items.

Form A of the test may be found in Appendix A.

The individual items of the test were selected from known sources in the different fields. Argumentative or debatable issues were avoided as much as possible. Acceptance of any particular school of thought was likewise avoided excepting in cases where the issues were clearly divided and stated as a dependent clause. For example, one such question reads:

59. If the concept of musical learning as an emergent process is accepted, which of the following characteristics regarding the musical staff should be expected to appear first in the child's mind?
   1 The musical staff
   2 The lines of the staff
   3 The spaces of the staff
   4 The shape of the melody
   5 The clef sign

The correct answer in factual statements such as may be found in questions relating to history are relatively non-debatable:

40. He was secretary of the first board of education of Massachusetts in 1837. He organized the first three normal schools in the U. S.
   1 Dewey
   2 Barnard
   3 Thorndike
   4 Eliot
   5 Mann

In the same manner, the answers to questions relating to known physical phenomena are uniformly acceptable:

188. The average limits of audibility in the human being are
   1 250 to 100,000 cps.

2 110 to 70,000 cps.
3 64 to 42,000 cps.
4 20 to 20,000 cps.
5 10 to 120,000 cps.

Questions pertaining to statistics and measurement have answers which afford less opportunity for debate:

154. The 'split-half' method is used in the examination of a test for
1 validity.
2 reliability
3 correlation accuracy
4 standard error of estimate
5 percentile rank

The greatest problem in presenting questions, difficult enough to challenge the thinking as well as the background information of the student fell in the area devoted to music education:

60. Which of these items listed below best represents a negative outcome of the music contest?
1 It provides motivation for the students.
2 It tends to promote the performance o f a better grade of music.
3 Contest ratings afford the supervisor or school administrator an opportunity to evaluate the music director.
4 Directors may observe the work of others and receive the comments of adjudicators.
5 It provides a stimulus to directors.

In a question such as the one printed above, it is obvious that the student must rely on his judgment and experience to make the selection. It is a question, the answer to which may be debatable among the members of a group. The correct answer should represent thinking which is consistent with a modern philosophy of music education.

For the source of many of the questions in music education, the philosophy and writings of James L. Mursell have been used. Mursell is acceptable today as one of the most important thinkers, not only in music education, but in psychology and educational psychology as well.

He is responsible for much that is unanimous in the minds of music educators throughout the country.

An important test of the wisdom of choice of all correct answers for such questions is the item analysis which is the result of the initial testing program. For example, it may be assumed that the answer suggested as being correct by the writer will take on added prestige if a majority of the 'best' students are in agreement as indicated by their responses on the test.

The three general areas represented by the test (education, psychology and music) were each allotted 100 questions on the test. It should be pointed out that since it was possible to provide a machine-graded IBM answer sheet for use in connection with this test, the figure of 300 was conveniently used. On IBM form I.T.S. 1100 B 107 there is provision for 300 multiple choice items with five possible answers for each. Therefore, three hundred items were prepared with five alternated responses. In all cases the 'best' answer was to be checked as being correct. In general, it was considered desirable to have one answer, correct beyond debate, but to have four alternate responses, each of which must be logical enough that guessing would be cut to a minimum.

All students taking the test were asked to answer all of the items, using a process of eliminative reasoning when in doubt. The items of this test were not arranged in order of difficulty. The placement of the correct response in order from one through five was done at random.

TABLE V

Summary of the Number of Times each of the Five Responses is Represented as a Correct Answer

Response number	1	- 46 times
Response number	2	- 64 times
Response number	3	- 83 times
Response number	4	- 75 times
Response number	5	- 32 times
Total		- 300 times

Administration of the test.

The following major schools of music agreed to cooperate in the study of the test:

1.	Florida State University	14 students
2.	The University of Kansas	10 students
3.	The University of Texas	9 students
4.	Michigan State College	16 students
5.	New York University	11 students
		60 students

The music education department of each of these schools supervised the administration of the examinations at their institution. Papers were then returned to the writer for scoring and analysis.

Each of the cooperating universities provided the following additional material for use in analysis of the test:

1. A teacher rating, based on a designated scale:

(1) John Doe

2. A list of grades of courses taken by the student during his period of graduate work.

In analyzing the values set forth for the student on the rating scale a figure of 100 was assigned to the top point designated 'excellent' and units were assigned on a descending basis so that 'good' is interpreted as 90 and so forth. Marks were to be assigned by the directing faculty member and were to represent a composite estimate of the individual as a graduate student in music education.

The list of grades, which included the names of courses, the number of hours credit and the letter grade for the course was used to determine the grade point standing of the student. Points were assigned

the grades as follows:

A - 3 points
B - 2 points
C - 1 point
D - 0 points

Three separate items were available then for each student. They were his scores on the test, a teacher rating representing an expert opinion of the student as a music educator, and his grade point average for work done at the graduate level.

Analysis of the results and subsequent revision of test items.

Table VI presents a summary of the available information, including individual test scores on each of the nine divisions and subdivisions of the test; the total score made by the student on the even-numbered items; the total score made by the student on the odd-numbered items; the total score made by the student on the test; the numerical correspondent of the teacher rating for each student; and the grade point average of each student in graduate course work.

TABLE VI

SUMMARY OF INDIVIDUAL DATA

SUB-SCORES, TOTAL SCORES, TEACHER RATINGS, AND GRADE POINT AVERAGES FOR STUDENTS

STUDENT	TEACHER RATING	GRADE POINTS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTAL SCORE
POSSIBLE:	100	3.000	9	24	20	47	30	45	25	33	67	150	150	300
1	80	2.700	7	20	13	29	26	41	21	27	61	127	118	245
2	94	2.272	6	18	15	37	22	30	19	31	63	116	125	241
3	95	2.555	6	13	11	36	24	25	18	30	65	110	118	228
4	90	2.617	7	11	12	35	25	27	16	30	61	118	106	224
5	90	2.585	7	13	12	39	23	23	19	25	55	108	108	216
6	100	2.687	5	12	8	29	25	33	14	31	58	105	110	215
7	90	2.166	4	16	16	35	15	24	14	25	64	101	112	213
8	80	2.000	6	11	11	30	23	33	18	23	55	108	102	210
9	90	3.000	4	10	6	36	19	20	15	29	62	99	105	204
10	97	2.624	5	6	9	33	25	21	15	27	61	104	98	202
11	100	2.562	6	15	7	30	18	24	18	25	58	98	103	201
12	100	2.583	7	9	9	34	17	21	11	28	64	102	98	200
13	78	2.222	6	17	10	25	20	27	16	24	54	97	102	199
14	95	2.010	5	9	7	36	15	14	13	31	67	92	105	197
15	90	2.562	3	16	6	30	17	20	14	25	65	93	103	196
16	96	2.857	7	15	13	33	17	17	10	27	57	102	94	196
17	95	2.647	5	14	8	28	17	21	13	25	62	97	96	193
18	90	2.230	5	13	12	30	19	23	15	25	49	90	101	191
19	100	2.625	3	10	10	27	18	14	14	25	57	97	94	191
20	84	2.500	4	8	10	37	19	22	13	19	58	86	104	190
21	90	2.444	5	11	3	37	20	18	8	25	63	92	98	190
22	90	2.687	3	16	9	28	15	20	14	29	54	89	99	188
23	90	2.484	2	14	9	30	17	17	11	27	61	86	102	188
24	85	2.833	7	9	10	31	16	21	10	22	61	97	90	187
25	90	2.850	5	15	8	31	15	15	11	29	58	96	91	187
26	94	2.333	5	11	9	28	17	19	11	27	59	90	96	186
27	90	2.103	4	13	5	29	16	22	16	19	60	92	92	184
28	90	2.500	6	9	11	28	10	17	13	29	60	87	96	183
29	80	2.000	6	15	7	35	13	22	15	18	49	87	93	180
30	70	1.750	7	8	5	38	14	15	12	19	59	83	94	177

(continued)

Code: (1) Educational Administration and Curriculum
(2) Educational Philosophy
(3) Educational History
(4) Music Education
(5) General Psychology
(6) Educational Psychology
(7) Psychology of Music
(8) Music Hist.
(9) Music Theory Inst., etc.

TABLE VI (continued)

STUDENT	TEACHER RATING	GRADE POINTS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTAL SCORE
POSSIBLE	100	3.000	9	24	20	47	30	45	25	33	67	150	150	300
31	80	2.777	4	8	8	35	12	13	7	32	57	90	86	176
32	80	2.000	6	10	11	26	17	15	10	26	54	90	85	175
33	80	2.631	2	8	8	28	12	14	12	27	62	85	88	173
34	90	3.000	6	12	9	27	14	17	13	21	54	91	82	173
35	100	2.384	7	6	6	29	21	21	12	12	59	85	88	173
36	90	2.866	7	10	6	36	16	17	10	25	45	85	87	172
37	80	2.666	7	13	7	37	15	16	9	16	51	85	86	171
38	90	2.375	4	12	6	33	15	12	10	25	54	87	84	171
39	100	2.400	7	12	15	28	18	15	12	25	38	88	82	170
40	90	2.055	4	14	6	18	22	15	15	21	55	83	84	167
41	70	2.000	6	11	11	24	16	15	8	21	52	83	81	164
42	66	1.385	6	14	16	14	18	26	11	13	43	84	77	161
43	70	2.429	7	12	8	24	15	13	9	20	52	74	86	100
44	70	1.231	4	20	12	21	14	19	9	14	46	78	81	159
45	84	1.761	7	9	10	26	18	14	4	21	49	76	82	158
46	100	2.147	3	13	8	28	13	14	4	21	52	77	79	156
47	95	1.970	4	11	5	30	11	15	4	21	54	75	80	155
48	70	2.250	5	18	11	26	15	12	6	17	45	73	82	155
49	95	1.857	4	7	7	22	14	14	6	22	54	73	77	150
50	96	1.894	4	8	9	31	14	15	3	19	47	73	77	150
51	84	2.000	4	9	10	24	14	14	12	15	46	69	79	148
52	80	2.666	6	11	6	23	10	11	10	14	54	71	74	145
53	70	2.214	4	5	5	24	12	14	7	18	54	69	74	143
54	65	2.666	5	7	11	20	19	16	2	20	42	71	71	142
55	87	2.187	6	13	6	21	9	9	4	20	51	68	71	139
56	92	2.666	4	9	9	31	9	9	4	12	50	63	74	137
57	75	1.666	6	12	8	26	13	10	11	10	38	72	64	136
58	70	2.153	5	9	10	18	12	14	6	19	40	67	66	133
59	80	2.800	4	10	2	25	14	16	3	10	45	64	65	129
60	60	1.666	3	9	3	7	6	8	4	14	39	54	43	97

Code: (1) Educational Admin. and Curric.
(2) Educational Philosophy
(3) Educational History
(4) Music Education
(5) General Psychology
(6) Educational Psych.
(7) Psych. of Music
(8) Music History
(9) Music Theory, Instrument., etc.

Table VII presents an item analysis of the responses made on Form A of the test by sixty students who participated in the program.

Column A shows the number of highest thirty students answering the question correctly.

Column B shows the number of lowest thirty students answering the question correctly.

Column C shows the per cent of students responding correctly to each question.

Column D gives an interpretation based on observed differences between upper and lower half differences for each item:[109]

a - indicates items that do not discriminate sufficiently between students in the upper and lower groups.

b - indicates items that discriminate negatively, i.e. the 'correct' answer is given by a larger number of students in the lower half than in the upper half.

* - indicates questions subsequently deleted from the examination to make Form B.

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109. Accurate analysis by means of an index of discrimination (using a correlation coefficient such as that provided by 'Biserial r') is not practical when the number of cases available is less than 80.

TABLE VII

ITEM ANALYSIS - Form A

	A	B	C	D		A	B	C	D		A	B	C	D
1.	23	27	83	b	51.	11	12	38	b	101.	13	8	35	
2.	17	15	53	a	52.	21	12	55		102.	28	16	73	
3.	16	19	42	b	* 53.	6	8	23	b	103.	28	25	88	
*4.	8	4	20		54.	17	17	57	a	104.	16	10	43	
5.	21	20	68	a	* 55.	4	3	12	a	105.	15	8	38	
6.	27	27	90	a	56.	22	14	60		106.	26	14	67	
7.	11	6	28	a	57.	26	23	82		107.	18	17	58	a
8.	18	16	57	a	58.	23	16	65		108.	16	14	50	a
9.	21	18	39	a	59.	25	18	71		109.	19	19	63	a
*10.	14	7	35		60.	27	27	90	a	110.	19	14	55	
11.	9	8	28	a	61.	22	14	60		111.	23	24	78	b
*12.	7	14	35	b	62.	25	21	77		112.	27	19	77	
13.	15	12	45	a	*63.	8	6	23	a	113.	25	21	77	
*14.	3	4	12	b	64.	28	17	75		114.	18	21	65	b
15.	21	23	73	b	65.	25	18	71		*115.	8	6	23	a
16.	24	18	70		66.	25	23	80		116.	19	13	53	
17.	29	26	92		67.	22	20	70	a	117.	25	25	83	a
18.	10	8	30	a	68.	18	14	53	a	*118.	10	6	27	
19.	15	13	47	a	69.	24	17	68		119.	21	13	57	
20.	23	16	65		70.	19	10	48		120.	30	28	97	
21.	15	9	40		71.	16	15	52	a	121.	21	23	73	b
22.	16	20	60	b	72.	23	15	63		122.	21	15	60	
23.	15	12	45	a	73.	26	24	83	a	*123.	6	5	18	a
24.	25	19	57		74.	22	20	70	a	124.	23	17	67	
25.	17	14	52	a	75.	20	15	58		125.	17	13	50	
26.	23	18	68		76.	25	25	83	a	126.	13	9	37	
27.	13	10	38	a	77.	19	24	71	b	127.	17	12	48	
28.	16	18	57	b	78.	15	12	45	a	*128.	5	0	8	
*29.	5	4	15	a	79.	24	10	57		129.	12	4	27	
30.	25	25	83	a	80.	28	24	87		*130.	9	5	23	
31.	21	16	62		81.	22	21	71	a	*131.	6	6	20	a
32.	13	8	35		82.	22	19	68	a	132.	14	2	27	
*33.	8	6	23	a	83.	21	19	67	a	133.	15	5	33	
34.	10	9	32	a	*84.	10	12	37	b	134.	28	21	82	
35.	18	11	48		85.	20	16	60		135.	24	21	75	a
36.	25	25	83	a	86.	21	16	62		136.	18	8	43	
37.	7	11	30	b	87.	57	30	43		137.	21	11	53	
38.	13	10	38	a	88.	27	19	77		138.	13	5	30	
39.	19	16	58	a	89.	21	18	65	a	*139.	8	6	23	a
40.	22	18	67		*90.	7	3	17		140.	21	6	45	
*41.	0	1	2	b	91.	26	22	80		141.	20	9	48	
42.	17	19	60	b	92.	17	13	50		142.	22	12	55	
43.	12	11	38	a	93.	16	11	45		143.	15	11	43	
44.	24	21	75	a	94.	12	14	43	b	144.	18	8	43	
45.	18	14	53		95.	17	12	48		145.	19	10	48	
*46.	5	8	22	b	96.	23	10	55		*146.	3	3	10	a
*47.	10	4	23		97.	20	20	67	a	147.	19	3	37	
48.	11	14	42	b	98.	27	16	71		*148.	4	2	10	a
49.	23	13	60		99.	26	20	77		*149.	7	3	17	
50.	9	8	28	a	100.	27	23	83		*150.	6	8	23	b

TABLE VII (continued)

	A	B	C	D		A	B	C	D		A	B	C	D
*151.	9	8	28	a	201.	24	14	63		251.	26	17	71	
152.	12	8	33		202.	28	16	73		252.	26	21	78	
153.	5	3	13	a	203.	19	14	55		253.	24	17	68	
154.	8	2	17		204.	23	17	67		254.	23	14	62	
*155.	7	7	23	a	*205.	12	7	32		255.	28	25	88	a
156.	14	3	28		206.	26	21	78		256.	13	10	38	a
157.	16	6	37		207.	25	22	78		257.	26	24	83	a
158.	16	11	45		208.	20	11	52		258.	26	21	78	
159.	9	9	30	a	209.	25	12	62		*259.	28	26	90	a
160.	11	10	35	a	210.	26	28	90	b	260.	23	13	60	
161.	9	5	23		211.	21	13	57		261.	23	13	60	
162.	24	19	55		*212.	14	14	47	a	262.	29	22	85	
163.	27	19	77		213.	29	57	77		*263.	28	29	95	b
164.	21	17	63		214.	29	27			*264.	29	22	85	
165.	29	20	82		215.	24	11	58		265.	27	24	85	
166.	10	10	33	a	*216.	9	8	28	a	266.	27	19	77	
167.	30	27	95		217.	29	28	95	a	267.	18	14	53	a
168.	26	27	88	b	218.	27	18	75		268.	28	25	88	
169.	0	1	2	b	219.	17	15	53	a	269.	28	28	93	a
170.	24	24	80	a	220.	23	18	68		270.	28	27	92	a
171.	16	9	42		221.	27	25	87	a	271.	28	27	92	a
172.	12	8	33		222.	27	18	75		272.	26	23	82	
*173.	7	4	18		*223.	29	26	92		273.	27	20	78	
174.	14	9	38		224.	30	27	95		274.	27	19	77	
*175.	17	13	15	a	225.	29	26	92		275.	27	24	85	
176.	26	18	73		*226.	30	77	88		276.	30	26	93	
177.	25	17	70		227.	24	19	71		*277.	30	29	98	a
178.	25	13	63		228.	20	10	50		278.	27	18	75	
179.	19	7	43		229.	25	18	71		279.	30	25	55	
180.	26	10	60		230.	13	10	38	a	280.	29	27	93	a
*181.	9	5	23		231.	18	9	45		281.	26	20	77	a
182.	27	16	71		232.	25	15	67		282.	27	22	82	
183.	24	13	62		233.	23	17	67		*283.	30	26	93	
*184.	9	5	23		234.	28	19	95		284.	28	28	93	a
185.	25	13	68		235.	30	25	92		285.	29	30	98	b
186.	16	7	38		236.	24	11	58		286.	27	24	85	
187.	17	8	42		237.	29	24	88		*287.	29	27	93	
188.	24	12	60		*238.	30	29	98	a	288.	28	23	85	
189.	20	11	52		239.	29	24	88		289.	30	26	93	
190.	11	7	30		240.	24	18	70		*290.	30	30	100	a
191.	10	6	27		241.	24	25	82	b	291.	30	27	95	
192.	14	8	37		242.	20	15	58		292.	30	28	97	
193.	23	15	63		243.	26	24	83	a	293.	25	19	73	
*194.	5	1	10		*244.	15	15	50	a	294.	23	23	77	a
195.	7	6	22	a	*245.	27	25	87	a	295.	26	17	71	
*196.	5	4	15	a	246.	26	23	82		296.	25	24	82	a
*197.	2	3	8	b	247.	23	15	63		297.	23	19	71	
198.	26	19	75		248.	20	12	53		298.	26	18	73	
199.	13	4	28		249.	29	25	90		299.	25	16	68	
200.	14	9	38		250.	26	26	87	a	300.	26	22	80	

Table VIII presents data pertaining to the correlation between odd-numbered items and even-numbered items for purposes of ascertaining the reliability of the test with the use of a split-half method. The Spearman-Brown prophecy formula is applied.

TABLE VIII

Correlation between Odd-Numbered and Even-Numbered Items by 60 Students who took the test

Odd-numbered Items

Even-numbered Items	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100-104	105-109	110-114	115-119	120-124	125-129	fy	dy	fydy	$fydy^2$	$\Sigma' fxydx$	$dy\,\Sigma' fxydx$	$(\Sigma' fxydx)^2$	$\frac{(\Sigma' fxydx)^2}{fy}$
115-119			..										1 (7, 5)			2 (14, 16)	3	7	21	147	21	147		
110-114											1 (5, 3)	1 (6, 4)					2	6	12	72	7	42		
105-109									1 (5, 1)	1 (5, 2)	1 (5, 3)	1 (5, 4)		1 (5, 6)			5	5	25	125	16	80		
100-104								2 (8, 0)	2 (8, 2)	1 (4, 2)							5	4	20	80	4	16		
95-99								2 (6, 0)	2 (6, 2)	1 (3, 2)	3 (9, 9)						8	3	24	72	13	39		
90-94							1 (2, -1)	1 (2, 0)	1 (2, 1)	3 (6, 6)	1 (3, 3)						7	2	14	28	9	18		
85-89					1 (1, -3)			4 (4, 0)	2 (2, 2)								7	1	7	7	-1	-1		
80-84					1 (0, -3)	3 (0, -6)	2 (0, -2)	2 (0, 0)	1 (0, 1)								9	0	0	0	-10	0		
75-79				1 (-1, -4)	2 (-2, -6)	1 (-1, -2)	1 (-1, -1)										5	-1	-5	5	-13	13		
70-74			1 (-2, -5)	2 (-4, -8)	2 (-4, -6)												5	-2	-10	20	-19	38		
65-69			1 (-3, -5)	1 (-3, -4)													2	-3	-6	18	-9	27		
60-64					1 (-4, -3)												1	-4	-4	16	-3	12		
55-59																	0	-5	0	0	0	0		
50-54																	0	-6	0	0	0	0		
45-49																	0	-7	0	0	0	0		
40-44	1 (-8, -7)																1	-8	-8	64	-7	56		
fx	1	0	2	4	7	4	4	11	9	6	6	2	1	1	0	2	60	N	90	654	8	487		
dx	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8								
fxdx	-7	0	-10	-16	-21	-8	-4	0	9	12	18	8	5	6	0	16	8							
$fxdx^2$	49	0	50	64	63	16	4	0	9	34	54	32	25	36	0	128	554							
$\Sigma' fxydy$	-8	0	-5	-8	-9	-1	1	20	23	18	22	11	7	5	0	14	90							
$dx\,\Sigma' fxydy$	56	0	25	32	27	2	-1	0	23	36	66	44	35	30	0	112	487							
$(\Sigma' fxydy)^2$																								
$\frac{(\Sigma' fxydy)^2}{fx}$																								

Spearman-Brown formula applied

$r = .886\ d_r = \pm .0277$

$r = .934\ d_{r_t} = \pm .0154$

$r_{xy} = \pm$

$r_{yx} = \pm$

Table IX presents data pertaining to the correlation between Total scores on the test and the teacher rating of the students, converted to a numerical figure. This is for purposes of studying the validity of the test.

TABLE IX

Correlation Data representing Total Scores on the Test and a Numerical Index representing a Composite Teacher Rating of the Student

Teacher Rating

Total Scores - Form A

		60-62	63-65	66-68	69-71	72-74	75-77	78-80	81-83	84-86	87-89	90-92	93-95	96-98	99-101	fy	dy	fydy	$fydy^2$	$\Sigma' fxydx$	$dy\,\Sigma' fxydx$	$(\Sigma' fxydx)^2$	$\frac{(\Sigma' fxydx)^2}{fy}$
236-245		..						1 -4 5					1 1 5			2	5	10	50	-3	-15		
226-235													1 1 4			1	4	4	16	1	4		
216-225												2 0 6				2	3	6	18	0	0		
206-215								1 -4 2				1 0 2			1 3 3	3	2	6	12	-1	-2		
196-205								1 -4 1				2 0 2	1 1 1	2 4 2	2 6 2	8	1	8	8	7	7		
186-195										2 -4 0		5 0 0	2 2 0		1 3 0	10	0	0	0	1	0		
176-185					1 -7 -1			2 -8 -2				2 0 -2				5	-1	-5	5	-15	15		
166-175								3 -12 -6				4 0 -8			2 6 -4	9	-2	-18	36	-6	12		
156-165				1 -8 -2	3 -21 -9					1 -2 -3			1 1 -3		1 3 -3	7	-3	-21	63	-27	81		
146-155					1 -7 -7					1 -2 -4		1 0 -4		1 2 -4		4	-4	-16	64	-7	28		
136-145			1 -9 -5		1 -7 -5			1 -5 -5	1 -4 -5		1 -1 -5	1 0 -5				6	-5	-30	150	-26	130		
126-135					1 -7 -6				1 -4 -6							2	-6	-12	72	-11	66		
116-125																0	-7	0	0	0	0		
106-115																0	-8	0	0	0	0		
96-105		1 -10 -9														1	-9	-9	81	-10	90		
fx		1	1	1	7	0	1	10	0	4	1	18	6	3	7	60	N	-77	575	-97	416		
dx		-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3								
fxdx		-10	-9	-8	-49	0	-5	-40	0	-8	-1	0	6	6	21	-97							
$fxdx^2$		100	81	64	343	0	25	160	0	16	1	0	6	12	63	871							
$\Sigma' fxydy$		-9	-5	-3	-25	0	-5	-11	0	-7	-5	-9	7	-2	-3	-77							
$dx\,\Sigma' fxydy$		90	45	24	175	0	25	44	0	14	5	0	7	-4	-9	416							
$(\Sigma' fxydy)^2$																							
$\frac{(\Sigma' fxydy)^2}{fx}$																							

$r = .51 \quad \sigma_r = \pm .0905$

$r = \quad \pm$

$_{xy} = \quad \pm$

$_{yx} = \quad \pm$

Table X presents data pertaining to the correlation between Total scores on the test and the Grade Point Average of the students. This is for the purpose of Studying the validity of the test.

TABLE X

Data representing the Correlation between Total Scores on the Test and an Index of Grade Point Average for Grades in the Graduate School

Total Scores

Grade Point Average

	96-105	106-115	116-125	126-135	136-145	146-155	156-165	166-175	176-185	186-195	196-205	206-215	216-225	226-235	236-245	246-255	fy	dy	fydy	$fydy^2$	$\Sigma' fxydx$	$dy\,\Sigma' fxydx$	$(\Sigma' fxydx)^2$	$\frac{(\Sigma' fxydx)^2}{fy}$
3.000-3.199								1 0 5			1 3 5						2	5	10	50	3	15	9	4.2
2.800-2.999				1 -4 4				1 0 4		2 7 8	1 3 4						5	4	20	80	3	12	9	1.8
2.600-2.799					3 -4 9			2 0 6	1 1 3	2 4 6	2 6 6	1 4 3	1 5 3			1 8 3	13	3	39	117	19	57	361	27.7
2.400-2.599							-1 1 -2	1 0 2	1 1 2	3 6 6	3 9 6		1 5 2	1 5 2			11	2	22	44	26	52	676	61.4
2.200-2.399					1 -3 1	1 -3 1		2 0 2		2 4 2	1 5 1				1 6 1		8	1	8	8	9	9	81	10.1
2.000-2.199				1 -4 0	1 -3 0	1 -2 0	-2 2 0	2 0 0	2 2 0		1 5 0	2 8 0					12	0	0	0	2	0	4	-.3
1.800-1.999						3 -1 -3											3	-1	-3	3	-6	6	36	2.0
1.600-1.799	1 -7 -2				1 -3 -2		1 -1 -2		1 -1 -2								4	-2	-8	16	-10	20	100	5.0
1.400-1.599																	0	-3	0	0	0	0	0	0.0
1.200-1.399							2 -3 -4										2	-4	-8	32	-2	8	4	2.0
fx	1	0	0	2	6	5	6	9	5	9	9	3	2	1	1	1	60	N	80	350	44	179	++	204.5
dx	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	++							
fxdx	-7	0	0	-8	-18	-10	-6	0	5	18	27	12	10	6	7	8	44							
$fxdx^2$	49	0	0	32	54	20	6	0	5	36	81	48	50	36	49	64	530							
$\Sigma' fxydy$	-2	0	0	4	8	-2	-8	19	3	22	22	3	5	2	1	3	80							
$dx\,\Sigma' fxydy$	14	0	0	-16	-24	4	8	0	3	44	66	12	25	12	7	24	179							
$(\Sigma' fxydy)^2$	4	0	0	16	64	4	64	361	9	484	484	9	25	4	1	9	++							
$\frac{(\Sigma' fxydy)^2}{fx}$	4	0	0	8	10.6	.8	10.6	40.1	1.8	53.7	53.7	3.0	12.5	4	1	9	204.8							

$r = .345 \quad \delta_r = \pm .0114$

$r = \quad \pm$

$\eta_{xy} = .345 \quad PE = \pm .077$

$\eta_{yx} = .403 \quad PE = \pm .072$

In revising the test for subsequent use, it was decided to shorten the overall length of time necessary for administration from around three hours to approximately two hours. Fifty items were deleted from Form A of the examination on the basis of the item analysis. These may be noted by reference to Table VII, the Item Analysis. A sample of such an item follows:

12. Which of the following types of philosophy would most likely adopt a configurational psychology?
1 Idealism (6-6)
2 Realism (5-3)
3 Pragmatism (7-14)
4 Eclecticism (9-7)
5 Socialism (6-0)

The obvious confusion among the sixty students who took the examination leads to the conclusion that the item is not clear in some respects for there is a decided difference of opinion as to the correct response. The item was deleted from the revised test. In other cases there was more consistency of agreement among the students taking the examination, but their answer was not that which was considered correct. Such an item was deleted.

In making the revision, care was taken to eliminate equally from all parts of the test so that a balance would remain similar to that of the original test. Table XI presents data relating to the number of items deleted from each section of Form A of the test.

TABLE XI

Data showing the number of items deleted from each section of Form A of the Test for Purposes of revision.

SUB-SECTION	QUESTIONS Form A	Form B	Item no. Questions Deleted	Total Number Deleted	% Deleted
Educational Administration and Curriculum	9	8	4	1	11%
Educational Philosophy	24	19	10 29 12 33 14	5	20%
Educational History	20	15	41 50 46 53 47	5	25%
Music Education	47	43	55 84 63 90	4	8⅓%
General Psychology	30	25	115 118 123 128 130	5	16 2/3%
Educational Psychology and Measurements	45	35	131 139 146 148 149 150 151 155 173 175	10	22%
Psychology of Music	25	20	181 184 194 196 197	5	20%
History of Music	33	28	205 212 216 223 226	5	15%
Theory of Music etc.	67	57	238 264 244 277 245 290 259 283 263 287	10	15%
TOTALS	300	250		50	16 2/3%

In making the revision certain ones of the musical themes found in the latter part of the examination were deleted as a result of the item analysis. In four others, however, the thematic material was changed to represent a subordinate or lesser known theme from the same selection with the idea of increasing the difficulty slightly. The following items on Form A were changed in accordance with this latter procedure:

#276; #279; #285; #291

Table XII presents the percentile distributions for the nine subsections of the test and for the total scores on Form A for the sixty students who participated.

TABLE XII

PERCENTILE DISTRIBUTIONS FOR THE NINE SUB-SECTIONS AND FOR THE TOTAL SCORES ON FORM A OF THE GENERAL ACHIEVEMENT EXAMINATION FOR MAJORS IN MUSIC EDUCATION AT THE GRADUATE LEVEL

Section of Test	No. Items	Centiles = 0	10	20	30	40	50	60	70	80	90	100
Educ. Admin.	9	2.0	3.6	4.3	4.7	5.2	5.7	6.2	6.6	7.1	7.5	7.9
Educ. Phil.	24	5.0	7.8	9.3	10.1	11.0	11.9	12.8	13.9	15.0	16.7	20.0
Educ. Hist.	20	2.0	5.5	6.8	7.7	8.5	9.2	10.0	10.8	11.7	12.7	17.0
Music Educ.	47	7.0	21.0	24.5	26.9	28.5	29.6	30.6	32.7	35.0	37.0	39.0
Gen'l Psych.	30	8.0	12.0	13.7	14.7	15.5	16.4	17.4	18.7	20.0	23.5	27.0
Educ. Psych.	45	8.0	12.0	14.4	15.3	16.2	17.4	19.7	21.4	23.0	27.0	43.0
Psych. of Mus.	25	2.0	5.0	7.2	9.6	10.8	11.8	13.0	14.2	15.4	18.0	21.0
Hist. Music	33	10.0	14.5	18.3	20.0	21.3	24.0	25.0	26.0	27.7	30.0	33.0
Music Theory	67	38.0	44.0	47.7	51.5	53.8	55.2	57.3	59.6	61.4	63.7	67.0
Total	300	90.0	140.0	152.8	162.5	173.0	179.0	186.2	193.3	200.0	215.0	250.0

The table may be read as follows:

10 per cent of the students made scores below 3.6 on the section of the test dealing with Educational Administration and Curriculum.

60 Per cent of the students made scores below 186.2 on the Total of all of the sections of the examination. All MEDIAN scores are found in the column headed '50'. The tabulation above is based on the scores of 60 students.

CHAPTER V

MATERIALS AND PROCEDURES FOR STANDARDIZATION OF THE TEST

Selection of subjects tested.

Thirteen American Universities and Colleges participated in the administration of the revised edition of the graduate test for music education majors for the purpose of establishing norms and providing additional data for its evaluation. These schools responded voluntarily to a request for such assistance in the testing program. Some of them were in a slightly better position than others to provide the number of students needed to accomplish the purpose of the study.

Table XIII presents information as to the number of students from each university or college who took the graduate test, Form B.

TABLE XIII

A LIST OF THE PARTICIPATING SCHOOLS AND THE TOTAL NUMBER OF STUDENTS FROM EACH WHO TOOK THE REVISED TEST

Colorado State College of Education at Greeley	24
Florida State University at Tallahassee	26
Jordan College of Music at Indianapolis	14
Michigan State College at East Lansing	34
North Texas State College at Denton	18
Northwestern University at Evanston	5
Stanford University at Stanford	5
University of Kansas at Lawrence	20

TABLE XIII (continued)

University of Kentucky at Lexington	9
University of Michigan at Ann Arbor	8
University of Nebraska at Lincoln	4
University of Oklahoma at Norman	20
University of Southern California at Los Angeles	13
TOTAL	200

The music education department of each of these schools supervised the administration of the examinations at their institution. Papers were returned to the writer for scoring and analysis.

Each of the cooperating universities and colleges provided the following additional information for use in the analysis of the test: (in certain cases complete information was not available, but each school cooperated as completely as possible).

1. A teacher rating, based on a designated scale:[110]

(1) John Doe

Poor Fair Average Good Excellent

2. A list of grades of courses taken by the student during his period of graduate work; or a numerical grade point average of his grades.

In analyzing the values set forth for the student rating scale a figure of 100 was assigned to the top point designated 'excellent' and

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110. Marks were to be assigned by the directing faculty member and were to represent a composite estimate of the individual as a graduate student in music education.

units were assigned on a descending basis so that 'good' is interpreted as 90 and so forth.

Grade point averages are based on the following system of points:

A - 3 points
B - 2 points
C - 1 point
D - 0 points

Three separate items of information were then available for each student. They were his scores on the test, a teacher rating representing an expert opinion of the student as a music educator, and his grade point average for work done at the graduate level or upperclass undergraduate levels.

The tests were administered to graduate students in music education and to graduating seniors in music education. Of the 200 students taking the tests, complete information as to scholastic level was available for 174 of them. A breakdown of these levels as indicated by answers to a section of their questionnaire is presented in the following table.

TABLE XIV

DISTRIBUTION OF LEVELS OF SCHOLASTIC ACHIEVEMENT BY CREDIT HOURS FOR 174 STUDENTS WHO TOCK FORM B OF THE TEST

Graduating Seniors.....	22	Up to 45 semester hrs.....	11
Up to 15 semester hrs.....	107	Up to 60 semester hrs.....	1
Up to 30 semester hrs.....	31	Over 60 semester hrs.....	2

Total.....174

Methods of Administration.

In administering the test it was requested that students be limited to a two-hour period. Students were asked to answer all of the questions

if possible, using a process of intelligent reasoning for answering questions about which they were in doubt. Answers were made on an IBM machine-scored answer sheet with a special IBM Electrographic pencil. Additional information requested of the student included the date, sex, age, school and location. No request was made for information as to courses taken except for the number of semester hours of graduate work as a total. This was due to the time consuming factor of filling out such a form when courses were to be listed.

CHAPTER VI

PRESENTATION OF THE DATA

The following data is presented as the result of the administration of Form B of the General Achievement Examination for Graduate Majors in Music Education, Form B to two hundred graduating seniors and graduate students in music education in thirteen colleges and universities of the United States. This information is based on results from the test, from answers to certain questions on a brief questionnaire, and from additional material provided by instructors in charge of these students at each school.

The test questions for Form B may be found in Appendix B.

Table XV presents a summary of pertinent data for each student who took the examination. Included are figures representing scores on each sub-section of the test: the total score for each student: a breakdown of the total score into odd-numbered items answered correctly and even-numbered items answered correctly: and data representing the age of the student, the number of semester hours of graduate work within certain specified ranges, a grade point average, and a teacher rating made by members of the music education instructional staff in each university or college.

TABLE XV

SUMMARY OF INDIVIDUAL DATA

STUDENT (RANK)	Tchr. Rtng	Grd. Pts	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTALS	SEM HRS*	AGE
Items:			8	19	15	43	25	35	20	28	57	125	125	250		—
1	100	2.98	6	19	12	40	21	33	16	27	51	113	113	226	60 +	36
2	—		6	14	7	39	19	30	19	25	54	106	107	213		
3	96	2.9	6	16	11	35	20	24	14	27	55	104	104	208	45	33
4			8	12	6	36	19	26	16	27	56	106	100	206		
5	90	2.5	6	13	10	36	22	20	13	27	51	96	102	198	45	29
6			7	13	11	33	21	29	12	28	49	101	95	196		
7			7	14	10	37	14	20	14	24	53	101	92	193		
8		2.06	6	10	8	37	17	24	12	26	49	95	94	189		
9			5	10	6	33	20	18	16	26	55	95	94	189	45	30
10	98	2.9	7	9	6	33	18	22	13	27	52	96	91	187	60	33
11	91	2.8	5	10	7	37	14	22	12	25	53	93	92	185	30	25
12			8	13	8	26	22	26	13	26	53	101	84	185		
13			8	6	2	39	12	25	16	27	48	92	91	183		
14	80	1.56	5	11	7	35	18	25	16	22	44	91	92	183	Sr	25
15	96		5	10	7	35	21	24	11	20	49	90	92	182	15	23
16			5	10	10	33	16	17	13	26	52	95	87	182	30	23
17	84		6	16	8	26	17	20	14	22	52	97	84	181	15	30
18	80	2.04	5	13	8	35	19	16	14	22	49	96	85	181	45	34
19	95	2.38	6	11	5	26	21	22	18	24	48	95	86	181	15	27
20	91	2.08	6	10	8	32	19	20	10	26	50	91	90	181	Sr	21
21	95	2.0	6	11	6	31	20	25	11	20	50	89	91	180	Sr	24
22	97		5	13	8	30	15	19	9	23	48	86	94	180	15	32
23	90	2.55	5	9	7	36	15	20	13	26	48	95	84	179	30	25
24	90	2.70	7	9	8	37	10	19	10	26	53	94	85	179	30	28
25	90	2.4	7	14	12	30	17	19	11	25	42	88	89	177	15	
26	94	2.8	6	12	5	31	16	19	13	22	52	88	88	176	45	37
27	92		4	8	10	36	14	20	10	23	50	90	85	175	30	42
28			3	11	8	28	17	21	13	24	50	90	85	175	30	27
29	80	2.5	8	14	5	28	19	19	14	20	48	84	91	175	15	25
30	90	2.4	4	12	6	30	16	18	8	26	54	81	93	174	15	21

(continued on next page)

Code: (1) Educational Administration and Curriculum
(2) Educational Philosophy
(3) Educational History
(4) Music Education
(5) General Psychology
(6) Educational Psych.
(7) Psych. of Music
(8) Music History
(9) Music Theory, Inst., etc.

*Up to _____ Semester Hours of Graduate work

TABLE XV (continued)

STUDENT (RANK)	Tchr. Rtng	Grd. Pts	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTALS	SEM HRS*	AGE
Items:			8	19	15	43	25	35	20	28	57	125	125	250		
31	90	1.2	6	8	10	27	19	21	9	21	53	92	82	174	Sr	22
32	90	2.5	5	12	4	35	22	19	14	21	40	86	86	172	15	32
33	79	2.0	6	16	9	26	17	24	13	18	43	84	88	172		35
34	100	2.7	5	11	7	28	19	24	14	24	39	81	90	171	15	24
35	90	3.0	4	8	7	32	15	14	11	23	54	82	86	168	15	46
36			7	10	9	27	17	13	8	27	49	85	82	167		34
37	86		5	14	5	33	11	18	15	21	44	81	85	166	15	25
38	79		6	10	8	30	15	19	9	22	46	87	78	165	15	36
39	93	2.7	3	10	5	37	17	16	8	21	48	84	81	165	45	33
40	70	2.66	4	9	6	35	14	20	8	18	51	86	79	165	15	33
41	90	3.0	4	9	5	31	17	18	12	25	43	86	78	164	30	30
42	83		6	7	6	31	14	14	10	21	54	86	77	163	15	34
43	89	3.0	6	8	5	24	21	16	10	18	55	80	83	163		31
44	98	3.0	6	15	10	36	18	22	10	27	19	82	81	163	15	26
45	84	2.0	5	11	9	23	18	18	10	18	46	74	89	163	15	26
46	87		4	8	3	17	20	30	11	26	42	82	79	161	15	37
47	90	2.5	6	9	8	32	17	18	9	15	47	84	77	161		27
48	94	2.9	6	6	7	30	17	24	8	17	46	79	82	161	Sr	21
49	90	2.5	4	7	7	25	18	20	15	23	42	81	80	161	Sr	29
50			5	14	8	25	15	13	10	19	51	82	78	160	45	31
51	80	2.3	5	11	9	32	19	20	10	14	40	86	74	160	15	32
52	100		5	11	6	34	14	20	7	19	44	78	82	160	30	25
53			6	16	6	12	19	21	7	24	49	86	74	160		
54	94		4	7	8	34	12	14	9	22	49	85	74	159	15	40
55	89	3.0	4	9	5	29	14	12	11	17	53	76	83	159		24
56	91		7	8	7	30	11	12	11	20	52	80	78	158	30	33
57	95	3.0	5	10	5	37	14	15	9	16	47	72	86	158	15	35
58	90	2.3	4	7	12	37	11	12	13	20	41	81	76	157	60 †	32
59	100	2.6	7	11	8	33	12	16	9	12	48	79	77	156	30	21
60	95	2.8	4	12	6	25	12	17	10	22	48	79	77	156	30	30

(continued on next page)

Code:
(1) Educational Administration
(2) Educational Philosophy
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(8) Music History
(9) Music Theory, Inst., etc.

* Up to _____ Semester Hours Graduate work

TABLE XV (continued)

STUDENT (RANK)	Tchr Rtng	Grd Pts	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTALS	SEM HRS*	AGE
Items:			8	19	15	43	25	35	20	28	57	125	125	250		
61	94	2.3	5	10	9	27	16	12	8	20	49	79	77	156	Sr	21
62	91		4	7	11	26	15	15	10	21	46	80	75	155	15	27
63	90	2.3	4	10	7	27	14	14	11	19	49	65	90	155	45	33
64	88		6	8	8	28	14	15	10	19	47	81	74	155	15	27
65	95		7	10	6	30	16	19	8	15	44	72	83	155	15	26
66	95	3.0	5	10	4	36	19	25	10	17	28	78	76	154	15	28
67	80	2.6	5	8	6	31	19	23	8	21	33	83	71	154	30	25
68	85	2.6	5	7	8	31	19	21	7	25	41	86	68	154	15	32
69	88	2.5	5	14	10	34	10	15	5	14	47	80	74	154	15	
70	94		7	11	8	22	16	22	8	20	40	82	72	154	15	29
71	90	2.7	4	7	5	26	14	15	14	26	42	82	71	153	15	22
72	71		5	10	7	28	14	20	10	18	40	81	71	152	15	34
73	86	2.4	5	11	8	26	15	19	11	16	41	77	75	152	30	35
74	92		5	11	6	34	12	19	7	19	39	76	76	152	15	26
75	95	2.43	6	9	8	32	17	15	7	13	45	76	76	152	15	38
76	76		5	8	9	24	14	16	8	22	46	78	74	152	15	26
77	90	2.5	6	7	7	27	18	18	7	20	42	81	71	152	Sr	21
78	100		6	8	10	23	13	15	5	25	46	71	80	151	30	23
79	90	2.47	3	7	8	27	9	10	7	24	56	79	72	151	15	31
80	83	2.25	6	11	9	37	15	12	8	14	39	75	76	151	15	31
81			6	7	0	27	14	25	6	24	41	72	78	150		28
82			6	7	5	26	14	17	13	18	44	76	74	150	15	24
83	83	1.8	5	10	5	24	18	17	5	22	44	79	71	150	Sr	24
84	86	1.2	4	8	8	29	15	16	9	20	41	76	74	150	Sr	21
85	70		6	7	10	31	10	14	10	14	47	72	77	149	15	27
86	79	1.6	5	6	6	24	17	12	9	19	50	75	73	148	Sr	21
87	91		6	10	7	30	17	14	6	17	40	68	79	147	15	25
88	88		5	10	4	30	17	16	9	21	35	69	78	147	15	22
89	90	2.3	5	9	8	28	11	17	12	20	36	69	77	146	30	30
90	86	2.1	5	12	4	26	19	15	6	18	41	72	74	146	Sr	21

(continued on next page)

Code:
(1) Educational Administration
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(9) Music Theory, Inst., etc.

*Up to _____ Semester Hours of Graduate Work

TABLE XV (continued)

STUDENT (RANK)	Tchr Rtng	Grd Pts	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTALS	SEM HRS*	AGE
Items:			8	19	15	43	25	35	20	28	57	125	125	250		
91	87	2.6	4	6	10	27	12	19	8	21	39	71	75	146	15	25
92	100	2.6	6	8	6	25	16	19	8	14	43	72	73	145		23
93	80	2.4	7	7	5	27	14	14	11	18	42	77	68	145	Sr	20
94	89		4	9	7	21	15	22	8	18	39	75	68	143	15	23
95	91	1.69	6	11	5	24	13	14	11	14	45	74	69	143	Sr	21
96	100	2.3	2	6	7	31	9	16	12	15	44	71	71	142	15	26
97	79	1.8	5	6	5	24	15	18	8	18	43	71	71	142	15	25
98	100	3.0	6	7	8	29	11	16	9	16	39	72	69	141	15	28
99	80	2.0	5	10	7	25	15	14	9	19	37	74	67	141		26
100	80	2.1	7	11	9	31	17	18	7	10	31	73	68	141	45	23
101	80	2.5	7	8	7	31	12	14	10	13	38	69	71	140	30	30
102	92		5	8	7	28	12	16	7	18	38	65	74	139	15	24
103	92		4	7	9	19	15	15	8	18	44	71	68	139	15	30
104	84		5	8	7	21	11	16	8	15	47	67	71	138	15	26
105	89		6	9	6	20	10	15	11	15	45	67	70	137	30	27
106	90	2.5	6	8	8	30	14	21	7	17	26	68	69	137	30	29
107			5	10	6	28	12	19	14	21	22	71	76	137	30	25
108			5	8	6	23	11	11	11	20	41	70	66	136	15	24
109	90	3.0	5	6	7	25	16	18	8	20	41	71	65	136		32
110	90		4	5	6	24	11	17	7	22	40	74	62	136	15	37
111	93	3.0	2	11	7	33	13	13	7	15	35	70	66	136	15	26
112	83	2.2	5	10	10	24	14	15	8	14	35	68	67	135	30	25
113	67		5	6	3	18	14	20	6	21	42	72	63	135	15	23
114	70	2.6	5	12	9	24	14	18	9	13	29	60	73	133	30	37
115	70	2.0	5	6	5	22	15	19	8	18	35	71	62	133		
116	77	1.44	4	5	5	27	10	18	12	15	37	65	68	133	Sr	—
117	89		5	6	8	21	15	15	8	11	44	68	65	133	15	26
118	92		5	8	10	23	8	13	14	24	38	70	63	133	15	34
119	76	1.3	6	9	7	21	11	20	12	15	32	68	65	133	Sr	22
120	70	3.0	4	9	9	33	15	14	10	16	22	68	64	132		47

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Code:
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(5) General Psychology
(6) Educational Psychology
(7) Psychology of Music
(8) Music History
(9) Music Theory, Inst., etc.

*Up to ____ Semester Hours of Graduate Work

TABLE XV (continued)

STUDENT (RANK)	Tchr Rtng	Grd Pts	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTALS	SEM HRS*	AGE
Items:			8	19	15	43	25	35	20	28	57	125	125	250		
121			7	7	4	27	19	12	5	16	35	62	70	132	15	
122			3	8	11	26	13	16	13	7	35	71	61	132	15	25
123	86	2.4	6	11	8	29	16	11	5	20	26	67	65	132	34	15
124	90		5	7	6	25	11	15	8	14	41	66	66	132	15	30
125	80	2.3	6	10	10	20	14	15	12	8	26	69	62	131	15	34
126	81		5	7	6	21	9	18	8	11	45	63	68	131	15	31
127	92		4	7	7	32	11	18	6	14	32	65	66	131	30	29
128	87	2.1	4	5	5	27	16	15	8	14	37	63	68	131	Sr	27
129	100	2.3	6	7	4	23	11	14	9	16	40	67	63	130	15	29
130	88	2.38	6	8	8	27	9	14	10	12	35	62	67	129	15	23
131	76	2.3	8	4	4	28	13	10	6	17	38	64	64	128	Sr	20
132	77	2.4	6	8	9	32	12	15	2	14	30	63	65	128	45	44
133	99	3.0	6	6	3	25	11	6	7	18	46	61	67	128		37
134	90	2.57	5	3	3	32	8	4	2	24	48	65	62	127	30	35
135			5	10	7	17	13	12	6	18	39	68	59	127	30	26
136	68		5	6	5	25	15	19	6	10	36	64	63	127	15	25
137	75		3	6	5	27	8	15	8	20	35	75	52	127	15	27
138	92		5	6	7	26	11	17	12	9	34	64	63	127	15	22
139	88		7	8	6	23	11	12	4	14	42	67	60	127	15	28
140	84	2.13	3	9	9	19	10	12	3	17	44	61	65	126	15	21
141	69		6	8	9	24	12	15	2	22	26	61	65	126	30	33
142	73	2.0	8	12	8	26	15	18	13	13	10	60	63	123	15	42
143	87	3.0	5	8	8	26	11	9	12	14	30	64	59	123	15	22
144	94		7	12	7	17	13	16	7	14	29	61	61	122	15	24
145	75		3	6	6	24	12	17	6	19	29	67	55	122	15	26
146	100	2.7	5	8	9	24	8	13	7	12	36	69	53	122	15	35
147			5	9	5	25	10	16	5	21	26	58	64	122	15	51
148	90	3.0	7	4	2	20	8	18	8	10	45	57	65	122		39
149	90	2.32	3	5	1	28	8	6	1	20	49	56	65	121	30	45
150	70	1.66	6	6	7	24	10	12	7	10	39	54	67	121	15	25

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*Up to _____ Semester Hours of Graduate Work

TABLE XV (continued)

STUDENT (RANK)	Tchr Rtng	Grd Pts	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTAL	SEM HRS*	AGE
Items:			8	19	15	43	25	35	20	28	57	125	125	250		
151	90		4	5	8	26	9	14	6	11	37	68	52	120	15	25
152	86		5	6	4	22	11	9	10	15	52	64	55	119	15	26
153	90	2.6	6	8	7	28	16	18	5	9	22	66	53	119	30	38
154	76	1.9	6	11	2	27	9	3	6	11	43	43	63	118	15	24
155	87		4	3	7	26	12	13	7	14	32	59	59	118	15	37
156	90	3.0	7	9	9	25	12	17	8	0	30	61	56	117	45	33
157	70	1.5	6	8	4	19	10	17	9	12	32	46	71	117	15	23
158	79		4	5	3	26	11	10	8	10	40	57	60	117	15	23
159	80	3.0	3	9	4	17	11	21	9	15	25	60	54	114		22
160			3	9	5	22	9	12	7	14	33	53	61	114	15	20
161	80	2.5	5	9	7	28	9	15	5	12	24	55	59	114		31
162			2	8	6	23	14	15	13	17	26	56	58	114	15	25
163	81	2.1	4	2	4	28	10	11	5	12	37	48	65	113	15	35
164	77	1.2	5	9	3	25	16	9	5	13	27	59	63	112	15	27
165	70	2.4	5	9	4	29	12	14	5	12	21	55	56	111	Sr	29
166	92	2.0	5	7	6	27	16	21	6	23	0	61	56	111	30	24
167	78		3	5	8	26	14	19	7	12	26	65	45	110	15	42
168			6	11	6	28	10	15	4	11	19	57	53	110	15	44
169	92	2.4	6	8	5	27	11	2	7	11	33	59	51	110	15	34
170	82		4	6	4	19	11	17	7	5	36	53	56	109	15	30
171			4	8	2	20	9	15	8	12	30	49	59	108	15	26
172	77		6	9	5	21	12	14	4	15	21	62	45	107	15	21
173	94	3.0	3	9	6	24	12	14	12	19	7	53	53	106	15	36
174			2	7	6	14	9	11	4	15	37	46	59	105	15	24
175	81	1.59	3	7	8	32	9	12	8	7	16	50	52	102	Sr	28
176	80	2.5	5	7	5	22	12	17	6	11	16	53	48	101	15	41
177			4	4	6	22	10	17	4	15	19	52	49	101	15	27
178	94	1.41	3	4	4	18	9	12	9	8	34	47	54	101	Sr	26
179	80	2.5	3	8	8	27	1	0	5	10	37	50	49	99	15	33
180	83	2.66	4	4	7	25	12	14	10	1	21	44	54	98	15	23

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*Up to _____ Semester Hours of Graduate Work

TABLE XV (continued)

STUDENT (RANK)	Tchr Rtng	Grd Pts	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	ODDS	EVENS	TOTAL	SEM HRS*	AGE
Items:			8	19	15	43	25	35	20	28	57	125	125	250		
181	81	2.33	6	4	11	26	16	13	8	14	0	50	48	98	30	38
18[illegible]	–		3	7	7	16	8	8	3	15	28	47	48	95	15	30
18[illegible]	62		4	5	4	13	13	11	10	12	22	47	47	94	15	28
184	70	2.0	5	9	11	27	12	12	3	14	0	51	42	93		23
185	66		1	5	8	16	11	9	5	8	27	48	42	90	15	28
186	70	2.5	5	11	5	29	15	13	7	3	0	42	46	88	15	27
187	79		4	5	8	20	10	11	5	14	10	45	42	87	15	26
188	90	2.4	4	8	5	19	15	12	2	0	20	36	49	85	15	32
189	87	2.16	3	9	6	26	11	12	9	9	0	44	41	85	15	26
190	80	2.00	5	10	6	27	11	11	12	13	0	46	39	85	15	29
191	62	1.0	3	6	4	17	6	0	1	14	30	44	37	81	Sr	21
192			4	3	4	19	2	1	5	14	27	41	38	79	15	33
193	80	1.33	1	7	6	24	17	14	4	3	0	40	33	73	15	28
194			6	8	3	19	13	11	6	10	1	41	30	71	15	–
195	87	2.11	6	7	4	13	9	15	8	7	0	34	35	69	30	26
196	73		3	6	4	10	6	11	2	9	10	34	27	61	15	30
197	80	1.66	4	8	7	9	8	10	3	10	1	36	24	60		24
198	89	2.15	3	4	8	15	6	10	0	8	0	27	27	54		
199	80	2.40	2	4	5	21	7	15	0	0	0	29	25	54	15	29
200	100		4	5	6	28	4	0	0	0	0	23	25	48	30	24

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*Up to ____ Semester Hours of Graduate Work

Table XVI presents an item analysis of the responses made on Form B of the test. 185 examination papers were selected at random and placed in order from the highest to the lowest score. An item analysis was then made of the 50 papers with the highest scores and the 50 papers with the lowest scores.

Column A shows the number of highest 50 students answering the question correctly.

Column B shows the number of lowest 50 students answering the item correctly.

Column C shows the index of discrimination computed from the data given in Columns A and B. An index greater than zero indicates that more of the students in the upper half than in the lower half answered the question correctly. An index of zero indicates that as many in one group as in the other answered the question correctly. A negative index indicates that more students in the lower half than in the upper half answered the question correctly.

Column D shows the percent of students responding correctly to the question.

TABLE XVI

ITEM ANALYSIS - FORM B

	A	B	C	D		A	B	C	D		A	B	C	D
1.	49	34	.61	83	51.	45	30	.40	75	101.	48	37	.42	85
2.	39	23	.34	62	52.	41	29	.28	70	102.	30	8	.47	38
3.	18	20	-.04	38	53.	44	20	.36	74	103.	47	44	.15	91
4.	39	32	.17	71	54.	37	28	.20	75	104.	44	40	.13	84
5.	48	48	.00	96	55.	31	20	.22	51	105.	38	15	.46	53
6.	28	17	.23	45	56.	29	17	.25	46	106.	40	22	.39	62
7.	28	25	.06	53	57.	28	12	.34	40	107.	23	11	.27	34
8.	30	29	.02	59	58.	28	22	.12	50	108.	19	16	.07	35
9.	16	9	.18	25	59.	38	24	.30	62	109.	30	11	.40	41
10.	30	4	.59	34	60.	42	28	.33	70	110.	10	6	.13	16
11.	36	23	.27	59	61.	37	37	.00	74	111.	27	13	.30	40
12.	38	26	.26	64	62.	28	9	.41	37	112.	29	11	.38	40
13.	48	38	.40	86	63.	41	35	.16	76	113.	41	39	.48	88
14.	14	4	.32	18	64.	45	33	.34	78	114.	47	31	.47	78
15.	27	4	.55	31	65.	25	13	.26	38	115.	28	8	.44	36
16.	40	32	.19	72	66.	39	19	.42	58	116.	38	27	.24	65
17.	20	16	.09	36	67.	48	43	.26	91	117.	22	19	.06	41
18.	48	31	.53	79	68.	28	22	.12	50	118.	33	19	.29	52
19.	26	22	.08	48	69.	39	31	.19	70	119.	30	16	.29	46
20.	39	17	.45	56	70.	26	38	-.26	64	120.	42	25	.39	67
21.	26	16	.31	42	71.	33	29	.09	62	121.	34	13	.42	47
22.	33	31	.04	64	72.	37	37	.00	74	122.	20	14	.13	34
23.	10	7	.10	17	73.	33	12	.41	44	123.	26	18	.17	44
24.	32	17	.31	49	74.	40	34	.15	74	124.	33	25	.17	58
25.	34	24	.21	58	75.	39	22	.36	61	125.	17	20	-.06	37
26.	29	15	.29	44	76.	41	40	.03	81	126.	7	7	.00	14
27.	27	20	.14	47	77.	44	14	.61	58	127.	11	7	.12	18
28.	14	19	-.11	33	78.	29	14	.31	43	128.	13	12	.03	25
29.	21	12	.20	33	79.	23	19	.08	42	129.	22	14	.17	36
30.	38	30	.18	68	80.	31	18	.27	49	130.	18	25	-.15	43
31.	13	8	.14	21	81.	37	27	.22	64	131.	12	4	.28	16
32.	13	6	.21	19	82.	37	28	.20	65	132.	16	17	-.02	33
33.	20	24	-.08	44	83.	44	43	.04	87	133.	42	22	.44	64
34.	42	34	.21	76	84.	45	40	.18	85	134.	14	8	.17	22
35.	40	28	.27	68	85.	46	37	.30	83	135.	41	14	.54	55
36.	14	16	-.04	30	86.	24	12	.26	36	136.	32	21	.22	53
37.	40	25	.33	65	87.	43	19	.51	62	137.	49	37	.51	86
38.	23	21	.04	44	88.	48	38	.40	86	138.	25	16	.19	41
39.	12	16	-.10	28	89.	21	14	.15	35	139.	50	37	.59	87
40.	30	22	.16	52	90.	16	7	.25	23	140.	48	34	.48	82
41.	14	13	.02	27	91.	43	33	.27	76	141.	40	30	.24	70
42.	31	22	.18	53	92.	42	24	.40	66	142.	48	35	.46	83
43.	39	32	.17	71	93.	34	24	.21	58	143.	25	9	.36	34
44.	34	28	.13	62	94.	44	26	.43	70	144.	21	7	.34	28
45.	44	35	.26	79	95.	37	25	.26	62	145.	23	16	.15	39
46.	42	18	.50	60	96.	36	32	.09	68	146.	47	26	.55	73
47.	36	29	.15	65	97.	44	32	.32	76	147.	45	19	.57	64
48.	47	40	.29	87	98.	30	24	.12	54	148.	45	25	.48	70
49.	31	22	.18	53	99.	42	21	.45	63	149.	17	8	.24	25
50.	45	33	.34	78	100.	33	7	.54	40	150.	37	18	.39	55

TABLE XVI (continued)

	A	B	C	D		A	B	C	D
151.	46	23	.55	69	201.	38	27	.24	65
152.	37	20	.35	57	202.	44	21	.51	65
153.	42	20	.47	62	203.	49	29	.50	76
154.	24	15	.19	39	204.	30	21	.18	51
155.	29	11	.38	40	205.	34	18	.33	52
156.	37	25	.26	62	206.	48	37	.42	85
157.	33	14	.39	47	207.	40	32	.19	72
158.	16	14	.04	30	208.	47	18	.65	65
159.	20	16	.09	36	209.	44	31.	34	75
160.	15	10	.13	25	210.	43	20	.50	63
161.	35	20	.31	55	211.	39	11	.56	50
162.	13	4	.30	17	212.	48	42	.33	90
163.	44	27	.41	71	213.	25	3	.56	28
164.	14	10	.11	24	214.	40	33	.17	73
165.	23	17	.13	40	215.	45	25	.48	70
166.	43	22	.47	65	216.	35	17	.37	52
167.	47	20	.60	67	217.	36	12	.48	48
168.	41	17	.49	58	218.	45	28	.86	73
169.	37	18	.39	55	219.	50	32	.66	82
170.	46	21	.58	67	220.	43	13	.60	56
171.	45	22	.53	67	221.	37	14	.27	51
172.	36	9	.54	45	222.	46	32	.40	78
173.	38	18	.41	56	223.	48	30	.54	78
174.	48	33	.49	81	224.	48	33	.49	81
175.	40	16	.49	56	225.	48	37	.42	85
176.	45	23	.51	68	226.	48	32	.51	80
177.	44	30	.36	74	227.	45	29	.41	74
178.	39	18	.86	57	228.	43	27	.38	70
179.	47	38	.33	85	229.	44	35	.26	79
180.	42	19	.48	61	230.	43	20	.50	63
181.	39	23	.34	62	231.	42	17	.52	59
182.	37	23	.30	60	232.	29	10	.40	39
183.	49	36	.53	85	233.	46	26	.51	72
184.	43	23	.45	66	234.	39	17	.45	56
185.	43	22	.47	65	235.	42	16	.53	58
186.	45	27	.45	72	236.	42	34	.21	76
187.	46	30	.44	76	237.	31	23	.16	54
188.	33	11	.45	44	238.	42	26	.37	68
189.	40	29	.26	69	239.	46	25	.52	71
190.	23	11	.27	34	240.	48	29	.56	77
191.	38	16	.45	54	241.	41	21	.43	62
192.	43	14	.59	57	242.	48	35	.46	83
193.	41	28	.30	69	243.	46	27	.49	73
194.	42	21	.45	64	244.	46	31	.42	77
195.	48	31	.53	79	245.	36	17	.39	53
196.	34	18	.33	52	246.	41	36	.13	72
197.	48	39	.31	87	247.	44	17	.57	61
198.	49	35	.55	84	248.	39	16	.47	55
199.	44	21	.51	65	249.	41	11	.60	52
200.	41	26	.34	67	250.	39	23	.34	62

Table XVII presents the ranges of scores made on the Graduate Test and also the ranges of other data including teacher ratings, grade point averages, and odd-numbered versus even-numbered items answered correctly by 200 students taking the test.

TABLE XVII

Data Representing the Ranges of Scores Made on the Graduate Test and for other Pertinent Measures

ITEM	LOW	HIGH	N
Educ. Admin.	1	8	200
Educ. Phil.	2	19	200
Educ. History	0	12	200
Music Educ.	9	40	200
General Psych.	1	22	200
Educ. Psych.	0	33	200
Psych. of Music	0	19	200
Hist. of Music	0	28	200
Theory of Music	0	56	200
Odd Items	23	113	200
Even Items	25	113	200
Totals	48	226	200
Teacher Ratings	60	100	151
Grade Point Aver.	1.0	3.0	117

Table XVIII presents the percentile distributions for the nine sub-sections of the test and for the total scores on Form B for the two hundred students who participated. These are the NORMS for the revised test, Form B.

TABLE XVIII

PERCENTILE DISTRIBUTIONS FOR THE NINE SUB-SECTIONS AND FOR THE TOTAL SCORES ON FORM B MADE BY 200 STUDENTS TAKING THE EXAMINATION

Section of Test	Items	- Percentiles -										
		0	10	20	30	40	50	60	70	80	90	100
Educ. Admin.	8	1	3.7	4.4	4.9	5.3	5.6	5.9	6.3	6.7	7.2	8
Educ. Phil.	19	2	5.7	6.7	7.6	8.3	9.0	9.7	10.5	11.4	13.0	19
Educ. Hist.	15	0	4.4	5.3	6.0	6.6	7.2	7.8	8.4	8.9	10.2	12
Music Educ.	43	9	19.3	22.9	24.8	26.1	27.4	28.9	30.4	32.5	35.5	40
Gen'l Psych.	25	1	9.2	10.7	11.7	13.0	14.3	15.2	16.2	17.5	19.2	22
Educ. Psych.	35	0	10.7	12.8	14.2	15.5	16.6	17.8	19.1	20.4	23.4	33
Psych. Music	20	0	4.7	6.3	7.4	8.4	9.2	9.9	11.1	12.4	13.9	19
Hist. Music	28	0	9.8	12.5	14.1	16.0	18.1	19.6	21.3	23.4	25.7	28
Music Theory	57	0	18.0	27.8	34.3	37.9	40.9	43.3	45.9	48.7	52.0	56
TOTALS	250	48	96.8	114.0	124.3	132.2	141.6	151.4	158.1	165.0	181.8	226

The table may be read as follows:

On the section dealing with Educational Administration, 10 per cent of the students made scores below 3.7.

On the total of all sections, 60 per cent of the students made scores below 151.4.

All MEDIAN scores are found in the column headed '50'.

Table XIX presents the percentile distributions for the nine sub-sections of the test and for the total scores on Form B for one hundred and twenty-nine students who were graduating seniors or graduate students with up to fifteen semester hours of graduate credit. These are the NORMS for the revised test, Form B for seniors and graduate students with up to fifteen semester hours of graduate credit.

TABLE XIX

PERCENTILE DISTRIBUTIONS FOR THE NINE SUB-SECTIONS AND FOR THE TOTAL SCORES ON THE TEST MADE BY 129 STUDENTS WHO WERE GRADUATING SENIORS OR GRADUATE STUDENTS WITH UP TO FIFTEEN SEMESTER HOURS

Section of Test	Items	0	10	20	30	40	50	60	70	80	90	100
Educ. Admin.	8	1	3.5	4.2	4.7	5.1	5.4	5.7	6.0	6.5	6.9	8
Educ. Phil.	19	2	5.4	6.5	7.1	7.8	8.5	9.3	10.0	11.0	11.9	16
Educ. Hist.	15	2	4.4	5.1	5.7	6.3	6.9	7.5	8.1	8.7	9.6	12
Music Educ.	43	9	19.0	21.9	24.2	25.4	26.6	27.8	29.2	30.8	33.0	37
Gen'l. Psych.	25	1	9.1	10.4	11.3	12.2	12.6	14.7	15.6	16.9	18.7	22
Educ. Psych.	35	0	10.4	12.4	13.7	15.0	16.0	16.9	17.9	19.4	20.9	30
Psych. Music	20	0	4.7	6.5	7.2	8.1	8.3	9.6	10.6	11.9	14.0	18
Hist. Music	28	0	10.2	11.8	13.2	14.6	16.4	18.1	19.8	21.5	23.5	27
Music Theory	57	0	18.0	27.5	33.5	37.0	39.6	41.6	43.6	46.1	49.5	56
TOTALS	250	54	93.3	108.3	120.6	127.7	135.0	144.5	153.2	160.2	171.0	183

The Table may be read as follows:

On the section dealing with Educational Administration, 10 per cent of the students made scores below 3.5.

On the total of all section, 60 per cent of the students made scores below 144.5.

All MEDIAN SCORES are found in the column headed '50'.

Table XX presents the percentile distributions for the nine sub-sections of the test and for the total scores on Form B for forty-two students who had from fifteen to sixty semester hours of graduate credit. These are the NORMS for the revised test, Form B for students in graduate music education with from fifteen to sixty semester hours of graduate credit.

TABLE XX

PERCENTILE DISTRIBUTIONS FOR THE NINE SUB-SECTIONS AND FOR THE TOTAL SCORES ON THE TEST MADE BY 42 STUDENTS WHO WERE GRADUATE STUDENTS WITH FROM 15 to 60 SEMESTER HOURS

Section of Test	Items	0	10	20	30	40	50	60	70	80	90	100
Educ. Admin.	8	3	4.1	4.8	5.2	5.4	5.7	6.0	6.3	6.7	7.0	7
Educ. Phil.	19	3	6.0	8.1	8.6	9.2	9.7	10.5	11.1	11.7	12.8	16
Educ. Hist.	15	1	5.3	6.3	6.8	7.3	7.8	8.3	8.8	9.6	10.4	11
Music Educ.	43	13	24.0	25.5	27.0	28.5	30.0	31.5	32.7	34.5	36.5	37
Gen'l Psych.	25	4	10.0	11.6	12.6	13.6	14.4	15.4	16.2	17.1	18.0	22
Educ. Psych.	55	0	12.5	14.5	15.7	16.6	17.5	18.6	19.5	20.3	21.6	24
Psych. Music	20	0	3.3	6.3	7.6	8.7	9.7	10.9	11.7	12.7	13.7	16
Hist. Music	28	0	10.5	13.3	15.0	18.4	20.1	22.0	23.3	24.6	26.0	27
Music Theory	57	0	20.0	28.3	33.0	27.5	43.3	47.0	49.0	51.0	53.0	55
TOTALS	250	48	110.0	124.3	132.8	144.0	151.5	159.0	165.0	175.0	187.5	208

The Table may be read as follows:

On the section dealing with Educational Administration, 10 per cent of the students made scores below 4.1.

On the total of all sections, 60 per cent of the students made scores below 159.0.

All MEDIAN SCORES are found in the column headed '50'.

Table XXI presents data pertaining to the correlation between odd-numbered items and even-numbered items answered correctly by two hundred students who took Form B of the graduate test. This correlation is intended to ascertain the reliability of the test with the use of a split-half method. The Spearman-Brown formula being applied.

TABLE XXI

Correlation between the Odd-Numbered and Even-Numbered Items
by 200 Students who took the Graduate Test

Evens

Odds

	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100-104	105-109	110-114
110-114																			1 9
105-109																	1 16	1 7	
100-104													1 2		1 7 4	1 7 5	1 7 6		
95-99													2 4	3 18 9	3 18 12		16 b		
90-94													1 5 2	3 15 9	5 25 20				
85-89										1 4 -1	3 12 8	4 16 4	1 4 2	3 12 9	2 8 8				
80-84											7 21 0	6 18 6	4 12 8	3 9 9	3 9 12				
75-79										2 4 -2	7 14 0	7 14 7	3 6 6	1 2 3					
70-74									5 5 -10	8 8 -8	4 4 0	5 5 5	2 2 4	2 2 6					
65-69							1-5 0	3 0 -12	2 0 -6	5 0 -10	8 0 -8	4 0 0	2 0 2		1 0 4				
60-64							1-5 -1	2 -2 -8	5 -5 -15	4 -4 -8	7 -7 -7	2 0 -2							
55-59								2 -4 -8	4 -4 -12	3 -6 -6	2 -4 -2								
50-54							-3 1-6	-9 3-15	-9 3 -12	-3 1 -3	1 -3 -3								
45-49					-4 1-7	-8 2-14	-8 2-10	-4 1 -4	2 -8		1 -4 -4								
40-44			-10 2	-10 2-14	-5 1-7	-5 1-5	-5 1 -4												
35-39	1 -9					1-5													
30-34		1-7-8		1-7 -7															
25-29		2-16 -14																	
20-24		1-7-8																	
fx	1	4	2	4	4	9	12	14	18	30	28	24	14	15	15	1	3	1	1
dx	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
fxdx	-10	-36	-16	-28	-24	-45	-48	-42	-36	-30	0	24	28	45	60	5	18	7	8
$fxdx^2$	100	324	128	196	144	225	192	126	72	30	0	24	56	135	240	25	108	49	64
$\Sigma' fxydy$	-6	-32	-10	-21	-16	-29	-24	-24	-8	-2	45	53	48	58	67	7	21	8	9
$dx\,\Sigma' fxydy$	60	288	80	147	96	145	96	72	16	2	0	53	96	174	268	35	126	56	72
$(\Sigma' fxydy)^2$																			
$\frac{(\Sigma' fxydy)^2}{fx}$																			

fy	dy	fydy	$fydy^2$	$\Sigma' fxydx$	$dy\,\Sigma' fxydx$	$(\Sigma' fxydx)^2$	$\frac{(\Sigma' fxydx)^2}{fy}$
1	9	9	81	8	72		
2	8	16	128	13	104		
4	7	28	196	17	119		
9	6	54	324	31	186		
9	5	45	225	31	155		
14	4	56	224	22	88		
23	3	69	207	35	105		
20	2	40	80	14	28		
26	1	26	26	-3	-3		
26	0	0	0	-35	0		
21	-1	-21	21	-43	43		
11	-2	-22	44	-28	56		
10	-3	-30	90	-39	117		
10	-4	-40	160	-40	160		
7	-5	-35	175	-45	225		
2	-6	-12	72	-15	90		
2	-7	-14	98	-16	112		
2	-8	-16	128	-18	144		
1	-9	-9	81	-9	81		
200	N	144	2340	-120	1882		
				-120			
				2238			
				144			
				1882			

Spearman-Brown formula applied

$r = .894 \quad \sigma_r = \pm .0139$

$r_f = .944 \quad \sigma_{r_f} = \pm .0049$

$xy = \pm$

$yx = \pm$

Table XXII presents data pertaining to the correlation between total scores on the test and the teacher rating of the students, converted to a numerical figure. This is for purposes of studying the validity of the test. One hundred and sixty-nine students were used in this calculation.

TABLE XXII

Correlation Data representing Total Scores on the Test and a Numerical Index representing a Composite Teacher Rating of the Student

Teacher Rating

Total Scores	60-62	63-65	66-68	69-71	72-74	75-77	78-80	81-83	84-86	87-89	90-92	93-95	96-98	99-100	fy	dy	fydy	$fydy^2$	$\Sigma' fxydx$	$dy\,\Sigma' fxydx$	$(\Sigma' fxydx)^2$	$\frac{(\Sigma' fxydx)^2}{fy}$
220-229														1 9	1	9	9	81	3	27		
210-219	..														0	8	0	0	0	0		
200-209													1 1 2		1	7	7	49	2	14		
190-199											1 10		1 6 2		2	6	12	72	2	12		
180-189							2 -6		1 -2		2 10 2	2 10 4	2 10 4		9	5	45	225	-4	-20		
170-179							2 -8				7 28 0	1 4 1		1 4 5	11	4	44	176	-4	-16		
160-169				1 3 -7			2 6 -8	1 3 -3	2 6 -4	3 9 -3	6 18 0	5 15 -5	1 3 -2	2 6 -6	23	3	69	207	-12	-36		
150-159				1 2 -7		1 2 -5	1 3 -4	2 4 -6	3 6 -6	2 4 -2	6 12 0	5 10 -5		1 2 -3	22	2	44	88	-22	-44		
140-149				1 1 -7			6 6 -24		1 1 -2	3 3 -3	3 3 0			3 3 9	17	1	17	17	-27	-27		
130-139			1 0 -8	3 0 -21		2 0 -10	1 0 -4	2 0 -6	2 0 -4	3 0 -3	8 0 0	1 0 1		1 0 3	24	0	0	0	-52	0		
120-129			1 -1 -8	2 -2 -14	1 -1 -6	4 -4 -20			1 -1 -2	3 -3 -3	5 -5 0	1 -1 1		2 -2 6	30	-1	-30	30	-46	46		
110-119				2 -4 -14		2 -4 -10	4 -8 -16	1 -2 -3	1 -2 -2	1 -2 -1	4 -8 0				15	-2	-30	60	-46	92		
100-109						1 -3 -5	2 -6 -8	3 -6 -9				2 -6 -2			8	-3	-24	72	-20	60		
90-99		1 -4 -10	1 -4 -8	1 -4 -7				1 -4 -3							4	-4	-16	64	-28	112		
80-89		1 -5 -10		1 -5 -7			2 -10 -8			1 -5 -1	1 -5 0				6	-5	-30	150	-26	130		
70-79							1 -6 -4								1	-6	-6	36	-4	24		
60-69					1 -7 -6		1 -7 -4			1 -7 -1					3	-7	-21	147	-11	77		
50-59							1 -8 -4			1 -8 -1					2	-8	-16	128	-5	40		
fx		2	0	3	12	2	10	25	10	11	18	43	17	5	11	169	N	84	1592	-300	491		
dx		-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3								
fxdx		-20	0	-24	-84	-12	-50	-100	-30	-22	-18	0	17	10	33	-300							
$fxdx^2$		200	0	192	588	72	250	400	90	44	18	0	17	20	99	1990							
$\Sigma' fxydy$		-9	0	-5	-9	-8	-9	-13	-8	15	-9	69	32	26	22	84							
$dx\,\Sigma' fxydy$		90	0	40	63	48	45	52	24	-30	9	0	32	52	66	491							
$(\Sigma' fxydy)^2$																						
$\frac{(\Sigma' fxydy)^2}{fx}$																						

Scores

$r = .57$ $\sigma_r = \pm .0052$

$r = \pm$

$xy = \pm$

$yx = \pm$

Table XXIII presents data pertaining to the correlation between Total Scores on the graduate test and the Grade Point Average of one hundred and seventeen of the students who took the test. This is for the purpose of studying the validity of the test.

TABLE XXIII

Data representing the Correlation between Total Score on the Graduate Test and an Index of Grade Point Average for Grades made in the Graduate School or in the Upperclass Years of Undergraduate School Work

Grade Point Average

Total Scores	1.00-1.19	1.20-1.39	1.40-1.59	1.60-1.79	1.80-1.99	2.00-2.19	2.20-2.39	2.40-2.59	2.60-2.79	2.80-2.99	3.0	fy	dy	fydy	$fydy^2$	$\Sigma' fxydx$	$dy\,\Sigma' fxydx$	$(\Sigma' fxydx)^2$	$\frac{(\Sigma' fxydx)^2}{fy}$
220-229										1 7		1	7	7	49	4	28	16	16
210-219										1 5		0	6	0	0	0	0	0	0
200-209												1	5	5	25	4	20	16	16
190-199								1 4	2			1	4	4	16	2	8	4	4
180-189			1 3 / -3			4 12 / 0	1 3 / 1			2 6 / 8		8	3	24	72	6	18	36	4.5
170-179		1 2 / -4				1 2 / 0		4 8	2 4 / 6	1 2 / 4		9	2	18	36	14	28	196	21.7
160-169						1 1 / 0	1 1 / 1	2 2 / 4	2 2 / 6	1 1 / 4	4 4 / 20	11	1	11	11	35	35	1225	111.3
150-159					1 0 / -1		4 0 / 4	5 0 / 10	4 0 / 12	1 0 / 4	3 0 / 15	19	0	0	0	40	0	1600	84.2
140-149				2 -2 / -4	1 -1 / -1	3 -3 / 0	2 -2 / 2	2 -2 / 4	2 -2 / 6		1 -1 / 5	13	-1	-13	13	12	-12	144	11.0
130-139			1 -2 / -3			2 -4 / 0	3 -6 / 5	2 -4 / 4	1 -2 / 3		3 -6 / 15	13	-2	-26	52	18	-36	324	24.9
120-129				1 -3 / -2		2 -6 / 0	4 -12 / 4	1 -3 / 2	1 -3 / 3		3 -9 / 15	12	-3	-36	108	22	-66	484	40.3
110-119			1 -4 / -3		1 -4 / -1	3 -12 / 0		2 -8 / 4	1 -4 / 3		2 -8 / 10	11	-4	-44	176	-9	-36	81	7.3
100-109			2 -10 / -6					1 -5 / 2			1 -5 / 15	4	-5	-20	100	11	-5	1	.2
90-99						1 -6 / 0	1 -6 / 1	1 -6 / 2	1 -6 / 3			4	-6	-24	144	6	-36	36	9.0
80-89		1 -7 / -5				2 -14 / 0		2 -14 / 4				5	-7	-35	245	-1	7	1	.2
70-79												1	-8	-8	64	-4	32	16	16.0
60-69				1 -9 / -2		2 -18 / 0		1 -9 / 2				4	-9	-36	324	0	0	0	0
fx	1		5	4	3	21	16	24	14	7	17	117	N	-173	1435	168	-15	++	366.6
dx	-5		-3	-2	-1	0	1	2	3	4	5	××							
fxdx	-5		-15	-8	-3	0	16	48	42	28	85	168							
$fxdx^2$	25		45	16	3	0	16	96	126	112	425	944							
$\Sigma' fxydy$	-7		-13	-14	-5	-48	-22	-37	-11	21	-25	-173							
$dx\,\Sigma' fxydy$	35		39	28	5	0	-22	-74	-33	84	-125	-15							
$(\Sigma' fxydy)^2$	49	144	169	196	25	2304	484	1369	121	441	625	××							
$\frac{(\Sigma' fxydy)^2}{fx}$	49.0	28.8	33.8	49.0	8.3	109.7	30.2	57.0	8.7	63.0	36.7	474.2							

$r = .256 \quad \sigma_r = \pm .0317$

$r = \quad \pm$

$\eta_{xy} = .422 \quad PE = \pm .0418$

$\eta_{yx} = .431 \quad PE = \pm .0432$

Chances are 99/100 that each is significant

CHAPTER VII

INTERPRETATION OF THE DATA

A summary of individual data is presented in Table XV for two hundred students who took Form B of the graduate examination. While the presentation is self-explanatory it should be mentioned that some scores, especially those near the lower limits of the range of total scores may be the result of slower progress in taking the test. For example, the student who is number 200 on the list scored reasonably well on the first portion of the test but was unable to complete the examination in the length of time provided. This student, according to his paper did take advantage of the full time provided. Other cases of a similar nature may be found. The time element is a pertinent factor in the diagnosis of the student's knowledge of the subject areas considered. Characteristics relating to rapid thinking and to the immediate recollection of facts are a part of the diagnosis of the student by the graduate school and should be considered in reviewing the individual test paper.

Teacher ratings and grade point averages were not available for all of the two hundred students taking the revised form of the examination.

Table XVI presents an item analysis of the responses made on Form B of the test. 185 examination papers were selected at random and placed in order from the highest to the lowest score. An item analysis was then made of the fifty papers with the highest scores and the fifty papers with the lowest scores. Kelley has shown that the most accurate determination of item validities or internal consistencies can

be obtained by comparing approximately the upper and lower 27 per cent of the total group.[111] On the basis of this demonstration, Flanagan has prepared a chart and a table for estimating correlations from data on percentages of students answering correctly in the upper and lower 27 per cent of the group.[112]

The item analysis presented here is contained in four columns. Column I shows the highest 27 per cent of the students answering each question correctly. Column II shows the lowest 27 per cent of the students answering each question correctly. Column III then gives the index of discrimination based on Flanagan's chart. An item may be considered to have useful discriminating value when its index is .15 or above. Such an index indicates that more poor than superior students missed the item. A discrimination index of zero indicates that an equal number from both groups missed the item and a negative index shows that more of those in the upper group missed the item than those in the lower group.

Column IV shows the per cent of students responding correctly to the item. A percentage of 90 or above indicates that the question was too easy, while a percentage of less than 20 indicates that the item was too difficult to be useful unless the index of discrimination is high. Items answered correctly by a small number of both upper and lower group students may be faulty for several reasons. Confusing wording, differing

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111. Kelley, T. L., "The Selection of Upper and Lower Groups for the Validation of Test Items", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:17-24, 1939.

112. Flanagan, J. C., "General Considerations in the Selection of Test Items and a Short Method of Estimating the Product-Moment Coefficient from the Tails of the Distribution", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:674-680, 1939.

philosophies in the backgrounds of students, or ignorance of the subject may be contributing factors. Regardless of the causes, such items require further study and possible deletion if the examination is to be useful for its intended purpose.

Only 17 students out of 100 succeeded in marking the correct answer to question number 162:

Up - Low		
	162.	Which of the tests listed below is not intended to examine the musical talent or ability of the individual?
1 - 3	1	Seashore
1 - 5	2	Kwalwasser-Dykema
21 - 15	3	Schoen
13 - 4	*4	Kwalwasser-Ruch
13 - 22	5	Ortmann

The cause is obvious. The majority of students did not know the correct answer and applied a 'guessing' technique to the problem. The name 'Kwalwasser' is generally associated with the field of music, and so choice number four (the correct one) was avoided by most. Apparently the Ortmann and Schoen names were less well known and thus received the majority of guesses.

Another example may be considered:

Up - Low		
	36.	He believed that education should be state controlled and supported. Music held an important place in his philosophy of education. Education was intended to lead the young toward an understanding of their social obligations in a Christian community. He found himself in conflict with the Anabaptists.
26 - 16	1	Calvin
14 - 16	*2	Luther
3 - 8	3	Locke
2 - 5	4	Gentile
1 - 3	5	Rousseau

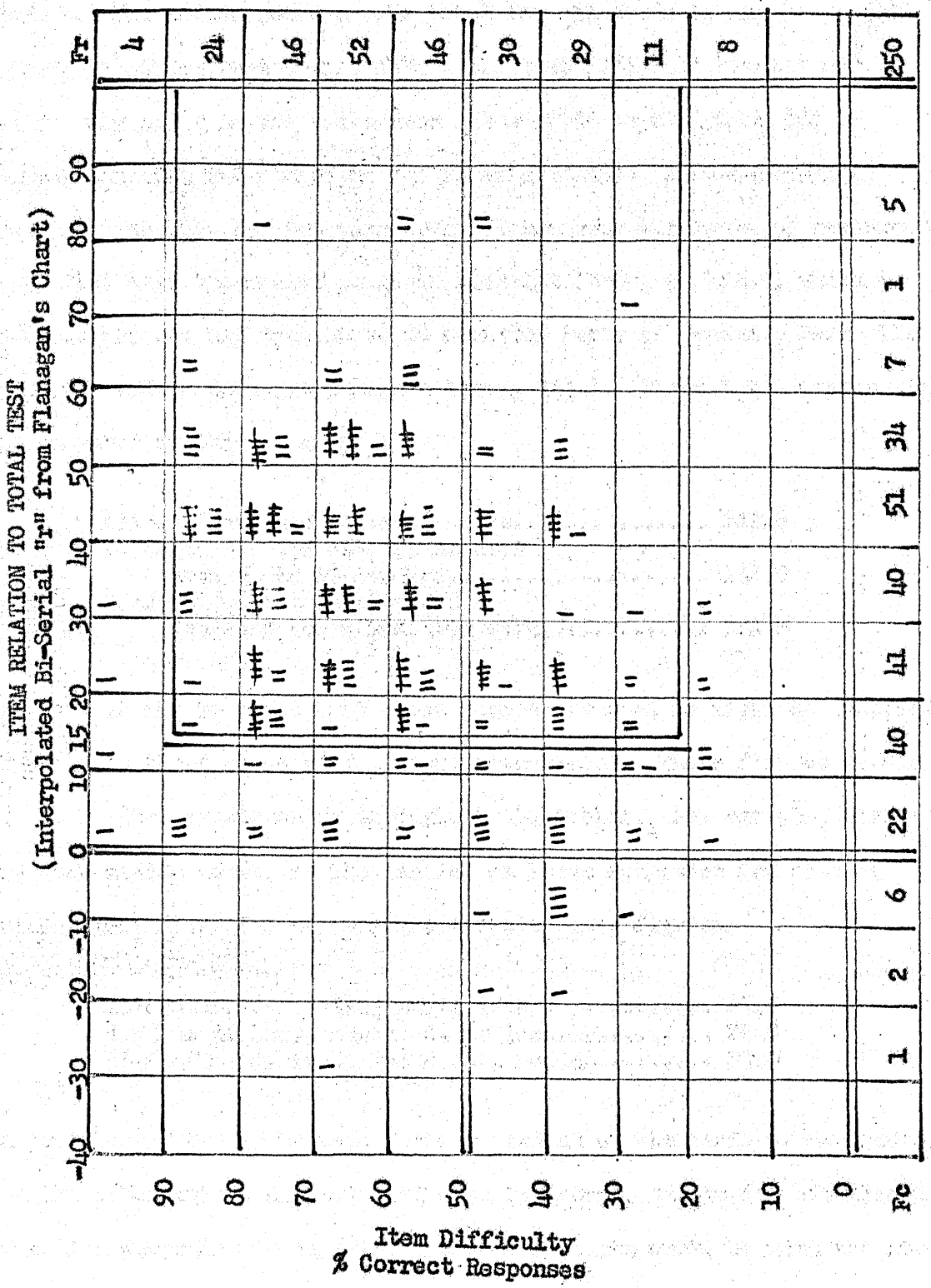
The final statement in the question regarding the Anabaptists should distinctly identify Martin Luther as being the person described,

yet a larger number of students selected Calvin. The explanation would appear to be that the majority of students taking the examination were simply unaware of the relationship between the facts presented and the personage which they identified.

Below is presented a diagram of Item Difficulty and Item Relation to the Total Test. The number of usable items out of a possible 260 from the results of the Item Analysis may be found within the limits of the area marked by double lines. A total of 196 items fall within these limits. The remainder of the items require further evaluation and study.

TABLE XXIV

Item Difficulty and Item Relation to the Total Test



Tables XVIII, XIX, and XX present the percentile distributions for scores made on the nine sub-sections and on the total of the test, Form B. The median score on the total for all students may be read at 141.6. A student who scored 142 on the test will find himself at the half way point in the range from a low of 48 to a high of 226 in comparison with the scores of the other students. A student who is a senior or who has had not more than fifteen semester hours of graduate work will find that the median point is somewhat lower, at 135.0, while a student who has had from 15 to 60 semester hours of graduate work will find the median point at a higher level, 151.5. These three scores might be compared in this fashion:

All students median total score..... 141.6
Students who are seniors or have
have up to 15 sem hrs..... 135.0
Students with from 15 to 60
semester hours graduate work..... 151.5

It may be noted that these scores are much as might be expected from these three classes of student advancement. These figures appear to be related consistently throughout the tables. For example, checking the median scores in the section on music education for each of these classifications of students reveals these figures:

All students, median, music educ..... 27.4
Srs. to 15 hrs., music ed. median..... 26.6
15 to 60 sem. hrs., music ed., median..... 30.0

A profile may easily be made for any student on the basis of his scores on the sub-sections and compared with the norms, either for his classification according to semester hours of graduate work, or with the students as a whole.

Table XXI presents data relative to the correlation between the odd-numbered and the even-numbered items. This method has the effect of dividing the test into random halves and is referred to as the split-half method. A high correlation would be represented by an equal score on both odd and even-numbered items. The correlation presented is .894 with a standard error of ± .0139. The application of the Spearman-Brown prophecy formula to this calculation is intended to ascertain the probable correlation with a test of twice the length. The corrected correlation here is .944 with a standard error of ± .0049 which indicates that sixty-eight per cent of the time the measure would fall within the limits of the boundaries shown.

A practical determination of the reliability coefficient involves more than merely correlating two sets of measurements. The conditions under which the two sets of scores were obtained (by the split-half method) must be examined for many possible errors. Numerous factors may influence test reliability. For example, it has already been shown that the greater the number of items, the more reliable the test. In addition, factors such as longer test periods, narrower range of difficulty, greater objectivity in scoring, homogeneity of material, choice of words and sentence construction, emotional or personal distractions on the part of the student, and cheating may influence the reliability of the test.

Corrections may be applied to reduce the weight of these factors. If the Standard Error of Estimate is applied, it may be interpreted as indicating that for an r of .94 the chances are 68 in 100 that the true measure lies within a range of plus or minus .237. The Standard error of measurement (sometimes referred to as Standard of a Test Score) is

.245. If a subject were to take the same test over and over again his 'true' score would be the average of all his scores. The difference between the obtained score and the true score is called an error of measurement. The estimated standard deviation of such an error of measurement is called the standard error of measurement. Approximately two-thirds of obtained scores on such a repeated series would fall within these limits, then. This correction is of additional value in judging the true range of the obtained measure. The Coefficient of Alienation for an r of .94 is .341. This may be thought of as measuring the absence of relationship in the same way that r measures the presence of relationship. The larger the coefficient of alienation, the smaller the degree of relation and the less precise the prediction. If r is zero, its value is 1.0. It is necessary to understand the nature of this correction, however, in order to evaluate it in the proper light. It should be noted that, compared to a correlation of zero, an r of .60 reduces the error of estimate by 20 per cent, whereas an r of .30 reduces it only 5 per cent and that r must be as high as .866 before the error of estimate is reduced by one-half.

The statistics mentioned above tend to substantiate and delineate the true worth of the measure of reliability obtained for this test. The relative position of the obtained r on a positive scale from zero to 1.0 may generally be accepted as indicating a high degree of internal consistency as long as the test is used for a group of the type with which it was validated and under similar conditions.

Table XXII presents data about the correlation between the total scores made on the test with the composite Teacher Rating furnished by the instructors directing the study of the students. It is the purpose

of this measure to assist in the determination of the validity of the test or to ascertain the degree to which the test actually measures what it purports to measure.

The technique used here was to check the results of the test with a prediction or rating by competent authority, in this case the instructional staff. The correlation indicated by Table XXII is .57 with a standard error of $\pm$ .0052. An examination of the methods of rating the students tends to strengthen any interpretation of the obtained r . No specific suggestions nor rating techniques were sent to the faculty concerned. Instead, a scale, graduated from 'poor' to 'excellent' was provided, and the examiners were asked to check a point on that scale which represented a composite rating of the individual as a graduate student in music education.

Since a number of different college and university instructors were involved in the marking of these students there is undoubtedly a wide variation in the standards used for judging them. Some instructors tended to rank all of their students on the upper one-third of the scale, while others spread these marks over its entire length.

A more definite set of instructions might have increased the reliability of these marks. However, it was considered to be a satisfactory method at the time. The correlation between teacher's ratings and test scores is as high as most coefficients reported between grades and intelligence, for example. As was stated in the first chapter of this study, the better group intelligence tests correlate between .40 and .60 with general scholastic averages in college. Therefore, it would seem reasonable to consider the obtained correlation of comparable value.

Table XXIII contains data about the correlation between the total scores on the test and an index of grade point average for 117 of the students taking the test. This information is presented with the purpose of assisting in the evaluation of a relationship between success on the test and success in academic work as measured by grades in college. The correlation coefficient in this table is .256 with a standard error of $\pm$ .0317. This correlation is low and positive.

The obtained r presented here may be examined further in several ways. The relationship between the paired values of two sets of measures may be described as 'linear' or 'non-linear'. When the means of the arrays of the successive columns and rows in such a table do not follow a straight line, but can be represented by a curve of some sort, the regression is said to be curvilinear or non-linear. When this is true r is not an adequate measure of the degree of correlation. The correlation-ratio, of non-linear relationship is read as 'eta'. If the regression is linear and the means fall along straight lines, η (eta) will equal r . If the regression is non-linear, eta will be greater than r . There are two η's in a correlation table. η_{yx} gives the regression of Y on X. η_{xy} gives the regression of X on Y. The correlation-ratio is always positive and its value lies between .00 and 1.00.

In Table XXIII Eta_{xy} is .422 with a P. E. of $\pm$ .0418. Eta_{yx} is .431 with a P. E. of $\pm$ .0432. In testing for linearity of regression it is discovered that neither eta is five times larger than its P. E. However, the chances that both are significant are 97 out of 100 and there is also a sizeable difference between the uncorrected

Eta and the r . This increases the validity of the measure, therefore, and Eta seems to be a better measure of relationship between the total scores on the test and grade point averages.

Another check on the obtained correlation may be made by applying a test for homogeneity. A correlation between a test and a criterion is limited by the reliability of that criterion. In previous discussions in the first chapter of this paper, it has been shown that teacher grades tend to have a maximum reliability coefficient of from .48 to .70. Hence, the following formula may be applied to obtain a correlation between a fallible criterion and a true score:

$$r_{1\infty} = \frac{r_{10}}{\sqrt{r_{00}}} = \frac{.256}{\sqrt{.48}} = .369$$

$$= \frac{.256}{\sqrt{.70}} = .306$$

(from T.L. Kelley, STATISTICAL METHODS)

In other words, if the reliability of teachers grades is accepted as .48 the corrected correlation for this table would be .369. If the reliability of grades is set at the maximum indicated by .70, then the resulting correction would produce a correlation of .306.

Another significant factor in regard to teachers grades is the practical limitation which is placed on the scale of marks in the graduate school. Because a grade of 'C' at that level tends to be less useful in meeting the requirements of graduation, additional emphasis is placed on the grades of 'A' and 'B'. Many instructors tend to think

in terms of a low 'B' for a student instead of a 'C' for this reason, and the result is an inaccuracy in true marking. In some cases, grade point indices were the result of undergraduate work. In other cases, they represented only the beginning of graduate work and often were the product of only one or two graduate courses.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

Summary.

The large increase in college and university enrollments in the postwar years throughout the country has brought with it many administrative and professional problems. Because advanced education has been brought within the grasp of many through federal aid to veterans and because certain factors such as salary increments based on graduate credits have tended to encourage further study on the part of public school teachers, the director of graduate education has become faced with the necessity of examining very carefully the calber of students applying for admission.

The field of music education, like its allied courses of study has felt this increase in its own graduate program, not only for the master's degree, but also in connection with that at the doctoral level.

The need for concrete measures with which to examine candidates for higher degrees is felt throughout the country and is being met in some cases in a positive manner with the development of testing materials and other techniques of a similar nature. Capable guidance for graduate students is of extreme importance and the use of diagnostic measures in connection with this function is a significant adjunt to its advancement.

The purpose of this study has been the development of an achievement test for use in the field of music education at the graduate level.

to assist in guidance and the prediction of success in that field. It has been the purpose of this study to develop this test from the standpoint of reliability, validity, and usability, together with an indication of its predictive value in the field of graduate study in music education. It has been a further aim to standardize the test by administering it in numerous colleges and universities throughout the country and deriving norms thereby.

The discussion of different types of achievement tests has shown a very definite lack of measures of this type for specific use in the evaluation of graduate students in the field of music education. To the writer's knowledge no test now exists which duplicates the techniques and functions of the one developed as a result of this study.

The study of achievement testing and the characteristics of an achievement test, its relationship to intelligence testing and to aptitude testing indicates that both a general intelligence measure and an ability measure in the specific field of musical performance should be considered in connection with the achievement examination in the prediction of success.

A test was developed covering nine fields of study regularly pursued by graduate students in music education in many schools. These fields were chosen from three general areas, viz. education, psychology, and music. Multiple-choice type items were used with five alternate responses from which to choose. Form A of the examination was administered to sixty graduate students in music education at five universities. These were The Florida State University, The University of Kansas, Michigan

State College, New York University, and The University of Texas.

Form A was analyzed for validity on the basis of an index of Grade Point Average and a special Teacher Rating for each student. The product-moment correlation between Total Score on the achievement test and Grade Point Average was calculated as .345 ($\sigma_r = \pm .0114$). The correlation between Total Score and Teacher Rating was found to be .51. ($\sigma_r = \pm .0905$). The reliability of the test, based on a Split-Half statistical analysis was .886. ($\sigma_r = \pm .0277$). Application of the Spearman Brown propheoy formula for a test theoretically twice the length produced a correlation of .934. ($\sigma_r = \pm .0154$).

An Item Analysis was made by dividing the Upper and Lower fifty per cent of cases for separate study. On the basis of the analysis, fifty items were subsequently deleted from the examination. These items were selected as being the most ambiguous or otherwise unworthy and with less value for diagnosis and prediction. This procedure also contributed to a shortened testing period, which was considered desirable.

Form B of the test, which consisted of 250 questions, each of multiple-choice type with five alternate responses from which to select the correct answer was administered to 200 students in thirteen colleges and universities in the United States. These included: Colorado State College at Greeley, The Florida State University, Jordan College of Music, Michigan State College, North Texas State College, Northwestern University, Stanford University, The University of Kansas, The University of Kentucky, The University of Michigan, The University of Nebraska, The University of Oklahoma, and The University of Southern California. These students were either graduating seniors in music education or were engaged

in work at the graduate level in that field, ranging from beginning candidates for the master's degree to doctoral candidates with more than 60 semester hours of graduate credit.

As before, a Teacher Rating and a Grade Point Average were provided for students taking the examination. The correlation between Total Score and Grade Point Average was .256 ($\sigma_r = \pm$ .0317); between Total Score and Teacher Rating was .57 ($\sigma_r = \pm$ .0052). The reliability of the test was determined by use of the Split-Half Method and produced an r of .894, corrected to .944 with the use of the Spearman-Brown Prophecy formula for a test twice the length. ($\sigma_r = \pm$ .0049).

Percentile Distributions were calculated for the 200 students taking the examination. These Norms were provided for each of the nine sub-sections as well as for the total scores on the test. Furthermore, separate Norms were set up for graduating seniors and graduate students with up to fifteen semester hours of work and for graduate students with from fifteen to sixty semester hours of graduate work in music education.

An Item Analysis was made for Form B and summaries were presented in tabular form to assist in the evaluation of individual items. 185 papers were chosen at random from the group and calculations were based on the upper 27 per cent and the lower 27 per cent of this set of papers. Both an index of discrimination and a figure representing the per cent of difficulty were available for each item. A summary of these two factors revealed that 198 items out of the 250 on Form B fell clearly within the limits of usability, i.e. they succeeded in discriminating between the better and the poorer students and also

represented a level of difficulty at which no more than ninety per cent or less than 20 per cent of the group were able to answer the item correctly.

Conclusions.

The original intent of this study was to develop a measuring instrument to be used in evaluating the probable success of the student applying for admittance to the graduate music education program and to assist in the guidance and counselling of that individual. Certain indications of the extent to which the test will fill the needs inherent in a growing and expanding graduate program have been given by comparing grades on this test with certain criteria representing evaluations of the student's ability and achievement in his chosen field. This data has been analyzed and explained. The fact remains that although its ability to predict success in course work is limited considerably by the obtained correlation with grade point averages, the explanations given regarding the criteria used in this comparison tend to substantiate an estimate of the ultimate worth of the test.

The most valuable use of this test is its addition to the guidance program. Even though a directing professor or committee might be unwilling to accept the results of work on such a test as tantamount to success or failure in ultimate graduate study, it may use a profile of the nine test areas to point out apparent weaknesses to be strengthened through particular study in courses indicated by those fields.

Furthermore, an individual professor or committee may study the various fields covered in this examination and reject in whole or part

those which seem less significant. It is a known fact that all universities and colleges do not agree on the amount of emphasis to be placed on various fields of concentration for their graduate students. If a committee does not believe that an understanding of the psychology of Music is important, then the members will evaluate results of that section of this test in a different light. Certainly such a lack of agreement is manifest in the results of a testing program involving thirteen different schools. No attempt was made to evaluate the 200 tests on the basis of separate schools, however, and so no evidence is presented in the analysis of the results.

The real advantage of a test of this kind lies in the fact that there are norms available for the comparison of any student in this area with others within the limits of the sample. Local norms can and should be developed if the test is to be adopted for counselling and guidance.

In all probability most directing professors observe many of the functions of this examination through oral interviews with the applicant before admission to graduate standing. With the results of this test at hand, such oral interviews could be expedited much more efficiently.

It was not practical to conduct this examination to the limits required of an investigation which would correlate its findings with those of an intelligence test at the graduate or adult level. It should be noted, however, that recommendations have been made before in this study that any evaluation of a student applying for graduate work should be done in connection with a mental test and an applied music test of the

individual's ability in his particular field of musical performance.

Suggestions for further research.

It is suggested that the following steps might be taken to increase the worth of this study and the test which has resulted from it:

(1) It should be studied in a control situation in a particular college or university over a period of several years, being administered to entering students and then used in connection with subsequent checks to ascertain its original predictive values.
(2) It should be studied in connection with a specific measure of the student's learning capacities with a large group of students. A measure such as the 'Miller Analogies' test would be useful here.
(3) Teacher ratings should be obtained under circumstances of fine control.
(4) Expert opinion should be polled through the use of definite checklists

APPENDIX A

General Achievement Examination for Graduate Majors in Music Education

FORM A

GENERAL ACHIEVEMENT EXAMINATION FOR GRADUATE MAJORS IN MUSIC EDUCATION ---- Form A

by ROBERT L. BRIGGS, Asst. Prof. Music Education, Florida State University

QUESTIONNAIRE

Name _____ (Last First Middle) Sex: M F (encircle one) Date _____

Age: yrs. mos.

Present College (or university) _____ Class: (check one) Senior .....

Graduate student with:
up to 15 sem.hrs. ____
up to 30 sem.hrs. ____
up to 45 sem.hrs. ____
up to 60 sem.hrs. ____
over 60 sem.hrs. ____

Location _____ (City State)

In the spaces below, please insert (as accurately as possible) the number of hours for which you have credit in the various types of courses listed. Column A is for courses taken prior to the present session. Column B is for courses in which you are now enrolled. If you have taken a course similar to one listed below, though not entitled exactly the same, fill in the one which seems to describe the work in that course. If the work was done in SEMESTER HOURS, no designation need be made, but if the work was done in QUARTER HOURS place a Q after the no.of hours.

	A	B		A	B
Harmony (and Keyboard)			General Psychology		
Sight Singing and Ear Tr.			Educational Psychology		
Counterpoint			Educational Measurements		
Canon and Fugue			Educational Admin.and Superv.		
Form and Analysis			Educational Curriculum		
Composition			Educational History		
Instrumentation(arranging)			Educational History in U.S.		
History of Music			Educational Philosophy		
Conducting			Educational Statist. and Meas.		
String instrument class			Educational Sociology		
Woodwind instrument class			Gen'l Survey of Education		
Brass and Percussion class			Elementary Education		
Band methods			Secondary Education		
Orchestra methods			Psychology of Learning		
Choral methods			Clinical Psychology		
Supervision of Music Educ.			Guidance or Counseling		
Psychology of Music			Mental Hygiene		
Music in Therapy			Adolescent or Child Psychol.		
_____			Elemen. Public School Music		
_____			Junior High School Music		
_____			Senior High School Music		
_____			_____		

Please list below the fields of performance such as piano, voice, violin, etc. in which you are most proficient and in order of proficiency:

First _____ Second _____ Third _____

On the reverse side of this sheet list your various teaching experiences, including practice teaching, directed teaching or internship, together with other professional experiences which contribute to your musical background.

Directions: Each of the incomplete statements or questions on the following pages is followed by several possible answers. Select the answer that BEST completes the statement or answers the question, and place its corresponding number on the answer sheet provided. The answers will be made on the IBM machine-graded sheet provided. Fill in your name only on this answer sheet and read the additional instructions provided on that form for placing the answers properly. Be sure to use the pencil provided for this purpose.

SCORE: Total _____

A. Ed.Ad.,Sup.,Curr. _____
B. Ed.Phil. _____
C. Ed.Hist. _____
D. Music Ed. _____
Total EDUC. _____

A. Gen'l Psych. _____
B. Ed. Psych. and Meas. _____
C. Psych. of Music _____
Total PSYCHOL. _____

A. Hist. of Music _____
B. Music Theory,cond.,inst.,scoring _____
Total MUSIC _____

PART I: EDUCATION

A. Educational Administration, Supervision, and Curriculum

1. The Eight-Year Study conducted by the Progressive Education Association dealt with
   1 the curriculum.
   2 compulsory education.
   3 the use of intelligence tests in the schools.
   4 vocational education.
   5 teacher salaries.

2. The strongest influence in the determination of the curriculum is
   1 the teacher.
   2 the board of education.
   3 the administrator.
   4 the public.
   5 the educational philosopher.

3. The 'project method' was pioneered by the work of
   1 Mann 3 Dewey
   2 Barnard 4 Kilpatrick
   5 Morrison

4. School teachers are least critical of their profession in regard to
   1 salary.
   2 status in the community.
   3 large class sections.
   4 grading examinations.
   5 administrative interference in teaching methods.

5. Revenue for the operation of public schools is largely dependent upon
   1 property taxes.
   2 state income taxes.
   3 corporation taxes.
   4 state sales tax, beverage, gasoline or cigarette tax.
   5 federal aid.

6. The 6-3-3 plan was adopted primarily to
   1 further decentralize school administration.
   2 provide a more gradual transition between the elementary grades and the high school.
   3 provide for terminal education in the elementary school.
   4 present extra-curricular activities commensurate with the student's level of maturity.
   5 provide for greater activity competition within the school system.

7. Which of the following statements least well represents the function of the junior college ?
   1 To provide terminal education for those who cannot go on to higher ed.
   2 To provide a period for the adolescent who must orient himself with reference to vocations and to the whole body of knowledge.
   3 To prepare students for the upper two years of college and professional schools.
   4 To enable students to remain at home longer.
   5 To provide teacher training curricula.

8. Under the Dewey-decimal system books on Education was listed in the library under the
   1 200's 3 500's
   2 300's 4 600's
   5 800's

9. Under the Dewey-decimal system books in the field of music are listed in the library under the
   1 100's 3 400's
   2 200's 4 700's
   5 800's

B. Philosophy of Education

10. A definition of philosophy as 'a search for ultimate reality' is characteristic of
    1 Idealism. 3 Pragmatism.
    2 Realism. 4 Eclecticism.
    5 Socialism.

11. The method of obtaining 'truth' through revelation is a method adopted by
    1 Idealism. 3 Pragmatism.
    2 Realism. 4 Eclecticism.
    5 Socialism.

12. Which of the following types of philosophy would most likely adopt a configurational psychology ?
    1 Idealism. 3 Pragmatism.
    2 Realism. 4 Eclecticism.
    5 Socialism.

13. In an anarchy
    1 the individual is supreme.
    2 the government is dominant.
    3 the good of the majority is dominant.
    4 taxation without representation could not exist.
    5 one individual is in power.

14. Which of these is least typical of a democracy ?
    1 Majority rule
    2 Participatory group life
    3 Respect for personality
    4 An integrated society
    5 Motivation based on the common good

15. Which of the following is least likely a characteristic of the philosopher ?
    1 Formulates hypotheses.
    2 Appraises the value of knowledge in man's problems.
    3 Evaluates the use to which knowledge may be put.
    4 Reflects upon the meaning of knowledge.
    5 Applies experimental techniques to the hypothesis.

16. Which of the following questions represents the responsibility of the science of education rather than the philosophy of education ?
1 Is it the duty of the school to indoctrinate in the economic and the political ?
2 Should criticism of the social order be permitted in the schools ?
3 How far is the working purpose of present school work to prepare the individual for personal success ?
4 Is the intelligence quotient an important characteristic of prediction in school success ?
5 Does the teaching of patriotism tend to develop an antagonism toward other people ?

17. A good educational aim should not
1 survey the present state of experience of pupils.
2 form a tentative plan of treatment.
3 keep the plan constantly in view.
4 be formed by the school administrator alone.
5 be experimental and modifiable in keeping with the changing situation.

18. The term 'apperception' is most generally connected with
1 Froebel 3 Dewey
2 Herbart 4 Thorndike
5 Pestalozzi

19. Rousseau's ideal world, in the extreme, would have been governed as
1 a democracy.
2 a monarchy.
3 an anarchy.
4 a dictatorship.
5 totalitarian.

20. The concept of the 'ultimate aim' as being supreme in education is dangerous because it
1 is unachievable.
2 is impractical from the standpoint of the classroom teacher.
3 sets up theoretical limits which tend to place an undesirable restriction on growth, turning it in one direction.
4 is formulated by an educational philosopher.
5 can't be approached scientifically.

21. The theory of mind as a 'tabula rasa' is connected with
1 Rousseau. 3 Locke.
2 Pestalozzi. 4 Herbart.
5 Froebel.

22. Educational philosophy in Colonial America was largely determined by
1 the community council.
2 the church.
3 business and industrial needs.
4 European educational philosophy.
5 the edict of the British crown.

23. Through such works as his 'Orbus Pictus', the theory of complete utilization of the senses in learning was advanced by
1 Luther. 3 Comenius
2 Locke. 4 Bacon
5 Calvin

24. Preparation for 'service in the state' was a basic outcome of education in the philosophy of
1 Plato. 3 Rousseau.
2 The Sophists. 4 Pestalozzi.
5 Herbart.

25. The 'dialectic' method of learning was made important by
1 Luther. 3 Socrates.
2 Comenius. 4 Rousseau.
5 Dewey.

26. In Plato's utopian society, laws, policies, and procedures were to be determined by
1 democratic processes.
2 representatives in government.
3 a single ruler.
4 the wisest and 'best' men.
5 the priesthood.

27. 'Individual rights' were strongly upheld by
1 the Sophists.
2 Aristotle.
3 Plato.
4 Socrates.
5 Pythagoras.

28. Which characteristic listed below best fits the following statement ?
'Education takes place by adding the new to the old and in terms of the old.'
1 Doctrine of human depravity.
2 Theory of apperception.
3 Faculties of mind.
4 Atomistic psychological precepts.
5 Doctrine of formal discipline.

29. The 'mastery' formula is a product of
1 the Dalton plan.
2 the Morrison plan.
3 the 'Five Steps'.
4 the Miller plan.
5 the Harrison plan.

30. For the Progressive educator, education
1 is preparation for life.
2 is preparation for a vocation.
3 makes certain applications to life situations, when possible.
4 is life.
5 is teacher-directed.

31. An 'eclectic' philosophy
1 critically combines several philosophies.
2 was developed by Kohler and Koffka.
3 is a pragmatic philosophy.
4 is based on the S-R bond theory.
5 is typical of Behaviorism.

32. The 'Morrison plan' in educational pedagogy
1 relates learning to the apperceptive mass.
2 works best for small groups.
3 utilizes a series of lesson preparation units.
4 is a method for preparing a budget.
5 is a system of administrative planning.

33. Inductive thinking is allied with
1 deductive reasoning.
2 reflective thinking
3 scientific investigation.
4 imperical action.
5 eclecticism.

C. History of Education. For each of the following statements, name the educator who best fits all the qualifications.

34. He advocated a system of 'pauper schools' for the working class. He wanted language taught by a conversational method, and advocated the use of Latin as an instrument, and not as an end in itself:
1 Rousseau 3 Herbart
2 Locke 4 Fichte
5 Luther

35. He denied the doctrine of human depravity, and felt that the child was inherently good, but was subsequently corrupted by the evils of society.
1 Comenius 3 Rousseau
2 Herbart 4 Calvin
5 Locke

36. He advocated a continuous system of public education. He founded the University of Virginia.
1 Franklin 3 Cousin
2 Jefferson 4 Sheldon
5 Eliot

37. His work with children had a great effect on the development of modern education. He wrote a book with an intended educational moral, but it was accepted popularly only as a novel.
1 Rousseau 3 Herbart
2 Comenius 4 Pestalozzi
5 Sheldon

38. His theory of the 'apperceptive mass' has modern applications in educational philosophy. His 'five formal steps' found enthusiastic adoption in the American system of education after the turn of the present century.
1 Rousseau 3 Froebel
2 Dewey 4 Herbart
5 Pestalozzi

39. His theory on childhood education as a living thing, rather than preparation for the future led to his founding of the kindergarten.
1 Pestalozzi 3 Rousseau
2 Froebel 4 Comenius
5 Locke

40. He was secretary of the first board of education of Massachusetts in 1837. He organized the first three normal schools in the U.S.
1 Dewey 3 Thorndike
2 Barnard 4 Eliot
5 Mann

41. As a young woman, she and her sister introduced the kindergarten into England. She had been a pupil of Froebel, and in 1855 opened the first kindergarten in the United States.
1 Miss Elizabeth Peabody
(cont)

41. (continued)
2 Miss Susan Blow
3 Mrs. Carl Schurz
4 Mrs. Matilde Kriege
5 Miss Mabelle Glenn

42. He was strongly associated with the Protestant revolution in Germany. He believed that education should be universal for all classes and sexes and should be compulsory and free.
1 Erasmus 3 Sturm
2 Calvin 4 Locke
5 Luther

43. He believed that education should be state controlled and supported. Music held an important place in his philosophy of education. Education was intended to lead the young toward an understanding of their social obligations in a Christian community. He found himself in conflict with the Anabaptists.
1 Calvin 3 Locke
2 Luther 4 Gentile
5 Rousseau

44. He was a leader in the Jesuit system of education. He was once a Spanish knight.
1 Bacon 3 Huss
2 Melanchthon 4 Loyola
5 Rabelais

45. He was a nobleman, scholar, author and civil official. He desired to prepare the young man for the life of a gentleman. He believed in the private tutor rather than in any school system.
1 Locke 3 Knox
2 Loyola 4 Montaigne
5 Aquinas

46. His ideas in many respects were much in agreement with modern psychological theories of education. He is known as a sense-realist, and was an early proponent of audio-visual educational techniques.
1 Bacon 3 Locke
2 Comenius 4 Calvin
5 Herbart

47. His educational philosophy provided for the 18th century gentleman. His 'tabula rasa' theory is well known, but unacceptable today.
1 Locke 3 Pestalozzi
2 Rousseau 4 Comenius
5 Montaigne

ANSWER AS DIRECTED IN EACH QUESTION

48. Which of the universities named below was not among the first five to be established in the United States ?
1 Harvard 3 Princeton
2 Yale 4 Virginia
5 William and Mary

49. The Dame School is associated with
1 Protestant reformation in Germany.
2 Colonial America.
3 Seventeenth Century France.
4 the Spanish Inquisition.
5 Antiquity.

50. The 'Deluder Satan' law was passed in the Massachusetts colony in 1647 for the purpose of
1 providing opportunities for the study of the ministry.
2 requiring regular church attendance.
3 providing for schools in townships of a certain size in population.
4 providing private tutors for the upper classes.
5 prosecuting individuals accused of witchcraft.

51. One important reason for the organization of the early Academy school in the U.S. was the need for
1 college preparatory courses.
2 terminal education below the college level.
3 a finer study of the arts and literature.
4 training in law and medicine.
5 preparation for the theatrical profession.

52. The Morrill Act of 1862 provided for
1 the establishment of the junior high school.
2 funds to 'land grant' colleges for agriculture.
3 the U.S. Office of Education.
4 federal aid to endowed universities.
5 compulsory education in the elementary school.

53. The National Herbartian Society, established in 1892, later became the
1 National Education Association.
2 Progressive Education Association.
3 National Society for the Study of Education.
4 National Public School Assn.
5 Educational Supervisors Conference.

D. MUSIC EDUCATION

54. Which of the items listed below is the least important objective of the 'general music course' in the high school ?
1 To arouse and develop an interest in music.
2 To give further contact with music and some experience in producing it.
3 To give information about music that the well-informed person should have.
4 To provide for the talented student.
5 To provide opportunities for the discovery of musical skills.

55. Which of the following items least well represents the hopes of the public for their children in school music ?
1 A desire for culture.
2 An agency for personal growth and a continuing interest.
3 A disciplinary experience.
4 Worthy use of leisure time.
5 The fostering of talent.

56. Which of the items listed below is least likely a phase of work in the 'general music course' of the high school ?
1 Unison singing of interesting songs.
2 Attention to diction, phrasing, breathing and basic problems in voice production.
3 Integration of subject matter with other interests in the environment.
4 Use of audio-visual aids where propitious.
5 Study of class piano methods.

57. Which of these items is least valid as a criteria for a listening program in music ?
1 Listening periods should be regularly established so as to come at the same time each week.
2 Listening for general enjoyment should be included in the plans.
3 Listening is a means of musical exploration.
4 Listening may be regarded as an agency for the establishment of discriminating standards.
5 Listening should be considered as a factor in general musical motivation.

58. Which of the following items is the least valid if the desire is for the promotion of full and authentic growth and development ?
1 Discriminating choice of materials.
2 Use of the material in such a way as to highlight its musical appeal.
3 Drill is the keynote of success in musical endeavor.
4 Provision for a time schedule which doesn't require that certain materials be given within its specified period.
5 Development of an awareness of meaning before the presentation of skills.

59. If the concept of musical learning as an emergent process is accepted, then which of the following characteristics regarding the musical staff should be expected to appear first in the child's mind ?
1 The musical staff
2 The lines of the staff
3 The spaces of the staff
4 The shape of the melody
5 The clef sign

60. Which of these items listed below best represents a negative outcome of the music contest ?
1 It provides motivation for the students.
2 It tends to promote the performance of a better grade of music.
3 Contest ratings afford the supervisor or school administrator an opportunity to evaluate the music director.
4 Directors may observe the work of others and receive the comments of adjudicators.
5 It provides a stimulus to directors.

61. Which of the following statements is least justifiable in the selection of materials for a music reading program ?
1 The material is differentiated to provide for the slow, the average, and the talented pupils.
2 The material is written to fit a logical scheme of how to develop music reading, presented in a fixed outline of study.
3 Teachers are encouraged to adapt it to the interests and abilities of the class.
4 Difficult material may be used when it is requested by the children in an integrated program.
5 Drawings and illustrations are important when related to the spirit of the text and the music.

62. Which of the following concepts is not a valid concept of music reading in a modern, progressive education situation ?
1 Music reading should be considered as a skill subject, to be approached on a mathematical basis and an intellectual basis for greater simplicity.
2 Music reading is pursued as a means of obtaining quickly and accurately the ends sought in some or all other aspects of music study.
3 Music reading should be an activity pursued and even requested by the students in response to felt needs.
4 Music reading is to be considered as one means of arriving at an adequate appreciation of what the composer has tried to express through complex notation.
5 The music reading program develops according to pupil needs which make themselves evident in connection with other music endeavors.

63. Which of these characteristics of children's songs is least valid ?
1 Reflect their own personal interests.
2 Rely on folk song material to a great extent.
3 Be limited to their own realm of experience.
4 Reflect all types of musical composition.
5 Develop positive attitudes on the part of the children toward classical music.

64. Free bodily movement is a fundamental device for the teaching of rhythm. Which of these items is least valid from the standpoint of the music class ?
1 Movements must be large, co-ordinated and free-flowing.
2 The movement is tied closely to an auditory awareness of the music.
3 The response is pointed up and supported in terms of the music.
4 The technique of the dance is stressed.
5 The dancer is aware of sound and movement as a whole.

65. From the standpoint of good educational principles, which of these suggestions is most important in regard to the rhythm band ?
1 There should be a good supply of instruments.
2 Children should be encouraged to take a great deal of initiative in planning the ensemble and choosing the instruments to use.
3 Beating time is an experience that children can share.
4 The children should be shown the correct ways of holding and using the instruments.
5 The teacher should conduct the band.

66. Intrinsic motivation in the school music situation is represented by
1 the presentation of awards such as pins, letters and certificates.
2 the provision for social functions.
3 trips made with athletic teams.
4 the development of insight into musical values through study and appreciation.
5 an adequate grading or marking system.

67. Which of these items is least valid in respect to a good music reading program ?
1 The teacher should not attempt to cover too much ground, but rather concentrate on particular pieces.
2 Materials should be selected that favor rapid, progressive eye movts.
3 Materials should be interesting.
4 Reading involves the grasping of meaningful wholes.
5 Reading should be taught in a musical context.

68. From the standpoint of tone production by primary grade children, which of these factors is most significant ?
1 Knowledge of correct breathing.
2 Knowledge of correct enunciation techniques.
3 Practice with neutral syllables.
4 Imitation of the teacher's voice quality.
5 Study of melodic construction.

69. Teaching rote songs is a technique which is not used beyond the
1 second grade. 3 seventh grade.
2 fourth grade. 4 ninth grade.
5 none of the above.

70. The school music contest is most likely to draw criticism from
1 the school music director.
2 the school administrator.
3 the private teacher of music.
4 the chamber of commerce.
5 the mental hygienist.

71. The greatest criticism of the pre-orchestral instrument of a wind variety in the elem. grades is its
1 cost.
2 poor intonation
3 lack of utility value.
4 insanitary characteristics.
5 confusing fingering.

72. Which of these instruments has least value as a 'space frame' in the elementary school program ?
1 Tambourine 3 Tuned glasses
2 Piano 4 Melody bells
5 Xylophone

73. From the standpoint of the music teacher, which of these items is least important as a point of emphasis at the intermediate grade level?
1 Establishment of good attitudes.
2 Teaching of instrumental technique.
3 Use of children's interests in selecting reading as well as rote material,
4 Understanding of levels of ability.
5 Need for making all music reading purposeful.

74. Which of these subject areas correlates least well with music in an integrated program of education in the schools ?
1 Physical education 3 Art
2 History 4 Biological sciences
5 Physiological sciences

75. The greatest drawback in school operetta production in comparison with other types of musical performance is
1 the lack of suitable and worthwhile music materials.
2 the lack of time for rehearsals.
3 the resentment on the part of other teachers toward the music dept.
4 the indifference of the students.
5 the expense.

76. Dalcroze Eurythmics are used as a technique in connection with the child who is studying piano in order to facilitate his
1 grasp of rhythmic problems.
2 sense of harmonic structure.
3 ability to perceive the melodic line as a whole.
4 finger dexterity.
5 ability to play major and minor scales.

77. The high school Madrigal Club is a group of musicians who are organized together primarily
1 to play in instrumental ensemble.
2 to produce operettas and light musical shows.
3 to sing madrigals.
4 as a social organization among music students.
5 for the study of piano ensemble music.

78. In its formative years, which of these school musical groups tended to place more emphasis on the social aspects of its organizational activities than the others ?
1 Glee club 3 A Cappella choir
2 General chorus 4 Band
5 Orchestra

79. If the physical mechanism for vocal sound production is divided into three categories--the bellows, the vibratory structures, and the resonators, all but which of the following anatomical parts fall under the first heading. (bellows)?
1 Lungs 3 Larynx
2 Trachea 4 Bronchii
5 Diaphragm

80. Constant re-checking and re-classification of voices is most necessary at the
1 primary level 3 jr. high level
2 intermediate level 4 sr. high level
5 junior college level

81. Which of the factors listed below will probably have the greatest effect on the musical interests of the pre-school child ?
1 Radio
2 Phonograph
3 Singing voice of the mother
4 Children's song books
5 Piano at home

82. Which of the music programs listed below is the most likely illustration of democracy in the high school?
1 Band 3 Glee clubs
2 Orchestra 4 Mixed chorus
5 General music class

83. While sight reading ability is important to all musical performance groups, it is most necessary for which of these listed below ?
1 A Cappella choir 3 Mixed chorus
2 Glee club 4 Band
5 Orchestra

84. Which of these items listed below least well explains the reasons that have caused the serious composer to hesitate in writing for the concert band ?
1 Composer's lack of knowledge of the band's potentialities.
2 Composer's lack of respect for the band's musical capacities.
3 Limited instrumentation prevents a wider range of color than the orchestra.
4 There are plenty of orchestral transcriptions available.
5 Lack of professional bands for highly skilled performance.

85. 'Tessitura' of the singing voice refers to its
1 timbre 3 usable range.
2 extent of vibrato. 4 strength.
5 extent of training.

86. In choral singing, the most important determiner of the proper tempo is
1 the time signature.
2 the dynamic marking.
3 the text.
4 the ability of the group.
5 the melodic line.

87. The NSBOVA publishes
1 The Music Educators Journal.
2 The Journal of Musicology.
3 The Instrumentalist.
4 Competition-festival lists.
5 The Music Education Source Book.

88. Typical of a good parade march is an interesting countermelody in the
1 clarinets. 3 trombones.
2 trumpets. 4 basses.
5 French horns.

For each of the following statements, name the music educator listed below them who best fits all the qualifications.

89. He assembled a National High School orchestra of 250 players from the U.S. for the National Music Supervisor's Conference in 1926, and at subsequent meetings. He is known for his directorship of the National Music Camp at Interlocken.
1 Giddings 3 Hanson
2 Beach 4 Maddy
5 Revelli

90. A pioneer in public school music in Indiana, he also wrote widely for children, including the well known 'Melody Way' for piano. He has acted as an editor of the Music Hour, Progressive Music Series and New Music Horizons.
1 Maddy 3 Dykema
2 Miessner 4 Morgan
5 McConathy

91. He is best known as the founder of public school music in the U.S.
1 Billings 3 Mason
2 W. Aiken 4 Woodbridge
5 Loomis

92. His work in the Minneapolis schools from 1912 is well known. His efforts on behalf of the music reading program and his theory, 'Hands off--let the children do their own learning' are similar to the philosophy of Francis Howard.
1 Dann 3 Farnsworth 5 Coe
2 Maddy 4 Giddings

ANSWER AS DIRECTED IN EACH QUESTION.

93. The official beginning of Public School Music in the U.S. is dated
1 1789 3 1876 5 1905
2 1838 4 1892

94. The primary requisite for choral effectiveness is
1 rhythmic precision.
2 clear enunciation.
3 adequate instrumental accompaniment.
4 beauty of tone.
5 careful selection of materials.

95. School music to the end of the nineteenth century was characterized by its emphasis on
1 the school orchestra.
2 the A Cappella choir.
3 music appreciation.
4 music reading.
5 the talented student.

96. Which of the instruments listed below affords the best substitute for the oboe in a solo passage in the school band ?
1 Bb clarinet 3 Muted trumpet
2 Flute 4 French horn
5 Bb Soprano saxophone

97. Which of the following items is the greatest potential danger for the high school band member who also plays in a dance band ?
1 Development of inaccurate rhythm habits.
2 Distaste for classical types of music.
3 Development of a snobbish attitude toward the regular high school band musicians.
4 Development of wrong tone production habits.
5 Poor attendance at regular band rehearsals and functions.

98. The junior high school mellophone player most likely will be shifted to which of these instruments in the high school band or orchestra ?
1 French horn 3 Cornet
2 Trombone 4 Baritone
5 Tuba

99. The school band generally tunes to the tone of concert
1 F 3 Bb 5 C
2 A 4 Eb

100. Which of the instruments listed below is least logical for use by the elementary school child ?
1 Bb cornet 3 Flute
2 Bb clarinet 4 Violin
5 French horn

PART II: PSYCHOLOGY

A. General Psychology.

101. Hedonic tone relates most closely to
1 a feeling of inferiority.
2 binaural hearing.
3 the James-Lange theory of emotion.
4 pleasant feelings caused by physiological factors.
5 synesthesia.

102. Olfactory characteristics pertain to
1 hearing. 3 smelling 5 touching.
2 seeing. 4 tasting

103. The extrovert is most likely to be
1 thwarted. 3 gregarious.
2 withdrawn 4 inhibited. 5 regressed.

104. A secondary sensation in one sensory field produced by a primary sensation in another sensory field is known as
1 mutation. 3 synesthesia
2 a syndrome. 4 dualism. 5 praxiology.

105. The tendency to perceive an incomplete figure as a complete one is called the principle of
1 collective representation.
2 closure.
3 correlation.
4 convergence.
5 crossed reflex.

106. Learning differs from maturation in that maturation is
1 only acquisition. 2 only reproduction.
3 modification of reaction through previous practice.
4 change in behavior through physiological growth.
5 dependent on inherited traits.

107. The case history method of investigation is most characteristic of
1 comparative psychology.
2 physiological psychology.
3 structural psychology.
4 clinical psychology.
5 behavioristic psychology.

108. A motor achievement test is used to analyze
1 amusement. 3 maturation.
2 empathy. 4 tonicity.
5 intelligence.

109. In states of extreme emotion, the digestive processes
1 are increased.
2 are inhibited.
3 remain as before.
4 cease momentarily, but resume immediately.
5 increase momentarily, but are gradually inhibited.

ASSIGN EACH OF THE FOLLOWING FOUR QUESTIONS THE CORRESPONDING NEED FROM THIS LIST: (1) Ego (2) Social (3) Physiological (4) Indeterminate (5) Aesthetic

110. Belongingness.
111. Cooperation.
112. Attaining individuality.
113. Protection.

114. A state of emotion can be produced in an individual by the injection of
1 thyroxin. 3 adrenalin.
2 insulin. 4 calcium.
5 glycogen.

115. If identical twins were found to have IQ's of 120 and 89, respectively, it might be concluded most logically that
1 the measures used were not valid for both individuals.
2 the children were raised in separate environments.
3 the inherent capacities of the two were unequal.
4 this is a normal situation.
5 intelligence is not a product of gene transmission.

116. Which of the following is least true in regard to intelligence ?
1 It is a capacity for behaving in a certain manner.
2 It is an inherited capacity.
3 It is little affected by nurture.
4 It is synonymous with knowledge.
5 The capacity matures during childhood and adolescence.

117. A test which is intended to discover whether or not a subject would succeed in the field of music is called
1 an intelligence test.
2 a performance test.
3 an aptitude test.
4 an essay test.
5 none of the above.

118. A Psychogalvanometer is used to measure
1 blood pressure.
2 skin resistance.
3 glandular secretions.
4 cardiac output.
5 digestive actions.

119. The maze test is used to measure an animal's
1 reasoning ability.
2 instinctive sense of direction.
3 learning ability.
4 visual acuity.
5 perseverance.

120. Which of the items listed below is not a biological motivation ?
1 Hunger 3 Pain 5 Reproduction
2 Thirst 4 Vanity

121. When two motives are not in accord we have a
1 neurosis. 3 phobia. 5 compulsion.
2 repression. 4 conflict.

122. Which of the following is not a syndrome of insanity ?
1 Myopia 3 Paranoia
2 Paresis 4 Mania 5 Dementia praecox

123. Best known for his study of apes in connection with behavior is
1 Lewin. 3 Pavlov. 5 Kellog.
2 Kuhlmann. 4 Fechner.

124. The theory of the conditioned response could best be associated with the
1 fear at a first parachute jump.
2 tendency to resist innovations in government.
3 subconscious feeling of a need for leadership.
4 patriotic feeling which accompanies the sight of the American flag.
5 cruelty of mob action in contrast with the feelings of any individual member of that group.

125. Mendel, the Austrian monk developed his theories of heredity through his work with
1 white mice. 3 rose bushes.
2 rabbits. 4 garden peas.
5 pear trees.

126. Credited with the founding of behaviorism is
1 Cyril Burt. 3 Karl Pearson.
2 James Cattell. 4 John Watson.
5 Carl Jung.

127. The theory of a conditioned reflex was stimulated by a famous experiment conducted by
1 Porteus. 3 Pavlov. 5 Wundt.
2 James. 4 Gesell.

128. Well known for work in the field of abnormal behavior is
1 Lashley. 3 Havelock Ellis.
2 Kraft-Ebbing. 4 Titchener.
5. Helmholtz.

129. Credited with the present day classification of mental diseases is
1 Louttit. 3 Mesmer. 5 Seguin.
2 Doll. 4 Kraepelin.

130. Which of the individuals listed below wrote a book, describing his experiences as a patient in a mental hospital ?
1 Bleuler. 3 Darwin. 5 Beers.
2 Freud. 4 Shaffer.

B. Educational Psychology & Measurements.

131. A test to discover adjustive mechanisms in a subject is called
1 an intelligence test.
2 an achievement test.
3 an aptitude test.
4 a performance test.
5 a projective device.

132. All but which one of the following are exapmples of a 'group-type' test?
1 Army Alpha 3 Kuhlmann-Anderson
2 CAVD Scale 4 Rorschach
5 Henmon-Nelson

133. Most of the general intelligence tests now in use emphasize
1 mechanical ability.
2 linguistic ability.
3 mathematical ability.
4 social adaptation.
5 puzzle solving.

134. Aptitude tests are designed to
1 measure psychosomatic aberrations.
2 measure intelligence.
3 evaluate a developmental schedule.
4 predict future success in a field.
5 evaluate past performance.

135. The measurement of skills and information is achieved best by use of
1 aptitude tests.
2 intelligence tests.
3 achievement tests.
4 projective techniques.
5 psychoanalysis.

136. A prognostic test is used for
1 diagnosis.
2 prediction.
3 measurement of intelligence.
4 determining interests.
5 measurement of motor skills.

137. IQ equals (1 MA/CA (2 CA/MA
3 AQ x MA (4 MA x CA (5 AQ x CA

138. The Accomplishment Quotient is
1 a measure of ability in the arts.
2 an expression of relationship between educational age and mental age.
3 an index of the learner's standing in a particular school subject.
4 a formula for comparing the work of various students in the class.
5 a mathematical representation of intelligence.

139. All but which one of the following have revised the Binet scale ?
1 Kuhlmann 3 Vineland
2 Herring 4 Stanford
5 Pintner-Paterson

140. A child with an MA of 10 has an IQ of 115. His brother with a CA of 10 also has an MA of 10. Therefore, the CA of the first child is
1 greater. 3 lesser.
2 the same. 4 invalid.
5 indeterminate.

141. A measure which affords like results on subsequent re-testing is said to be (1 standardized.
2 variable. 4 weighted.
3 valid. 5 reliable.

142. A measure which is known to test what it purports to test is said to be
1 standardized. 3 valid.
2 variable. 4 weighted.
5 reliable.

143. The average or median IQ of a large population would fall on or near which of these figures ?
1 75 (3 90 (5 115
2 85 (4 100

144. To the psychometrist, a negative correlation is
1 of the same value as a positive correlation of the same size.
2 of lesser value than a positive correlation of the same size.
3 of greater value than a positive correlation of the same size.
4 of no value.
5 a rare occurrence.

145. The median is a measure of central tendency which is the
1 score that occurs most frequently in a series of ungrouped scores.
2 sum of the separate scores in a series, divided by their number.
3 point below and above which lie one-half of the scores.
4 average deviation from the mean.
5 none of the above.

146. The Spearman-Brown formula is used for
1 solving problems in correlation.
2 estimating the standard deviation of a measure.
3 the calculation of percentiles.
4 the prediction of test reliability with increased length.
5 the conversion of total scores into T-scores.

147. 'Cephalic index' is a term used to
1 classify phobias.
2 determine hemispheral dominance.
3 measure quartile deviations.
4 measure head size.
5 measure the psychogalvanic reflex.

148. Partial correlation is a term which
1 determines the relationship between one variable and several others taken together.
2 measures the degree of relationship between two variables when freed from the influence of other variables.
3 represents an incomplete result taken from a non-linear relationship.
4 measures the relationship between two sets of variables taken together.
5 represents the relationship between two variables, despite the unexplained effect of a third.

149. The standard deviation is a measure of variability which is computed by
1 subtracting the mean variation from each measure.
2 measuring the distance between Q_1 and Q_3 statistically.
3 averaging the extremes of the range of the distribution.
4 finding the average or mean of the deviations from a measure of central tendency.
5 finding the square root of the mean of the squared deviations taken from the arithmetical mean of the distribution.

150. A frequency polygon is
1 a six-sided figure.
2 a method of representing, graphically, measures which have been grouped into a frequency distribution.
3 a device for calculating the frequency distribution of a series, using a logarithmic scale.
4 a symmetrical representation of a distribution of scores along a bar line.
5 a formula for calculating the cumulative frequency of a series.

151. The regression coefficient is
1 an equation used in dealing with a psychotic patient who is regressed.
2 a statistical technique employed in the problem of prediction when one variable is known and the other is to be found.
3 an equation used in estimating the probable error of a coefficient of correlation.
4 an algebraic formula used for the solution of certain problems of estimating the effects of scatter.
5 a formula used in applying the product-moment method of correlation.

152. Chi-square test is
1 a test of the reliability of an achievement test.
2 a device for evaluating the relationship between four frequency polygrams.
3 a statistical method of determining the degree to which an obtained frequency curve fits the normal curve.
4 a measure used in partial correlation problems.
5 a test of motor ability.

153. Between the mean and $\pm 1\ \sigma$ of a normal frequency distribution lie approximately
1 one-half of the cases.
2 one-third of the cases.
3 ninety per cent of the cases.
4 two-thirds of the cases.
5 ten per cent of the cases.

154. The 'split-half' method is used in the examination of a test for
1 validity.
2 reliability.
3 correlation accuracy.
4 standard error of estimate.
5 percentile rank.

155. To be reasonably sure that a correlation greater than zero is present, an obtained r should be how much larger than its PE ?
1 Two times 3 Six times
2 Four times 4 Eight times
5 Ten times

156. Given a normal distribution with a mean of 12 and σ of 6, approximately what percentage of the cases falls between 6 and 18 ?
1 75% 3 68% 5 38%
2 33 1/3 % 4 95%

157. If the rank orders of 100 subjects on two separate tests are exactly the same, the coefficient of correlation between them will be
1 +1.00 3 +.50 5 +100.00
2 -1.00 4 0.00

158. The 'Law of Effect' was postulated by which of the men listed below ?
1 Watson 3 Wheeler 5 Titchener
2 Herbert 4 Thorndike

159. Which of these men is best known for his work on 'Remembering and Forgetting' ?
1 Ebbinghaus 3 Paterson 5 Pavlov
2 Binet 4 Holzinger

160. Which of the names listed below represents an important investigator in the field of adult learning ?
1 Binet 3 Galton 5 L.Hollingworth
2 Thorndike 4 Gesell

161. 'Ontogeny repeats the phylogeny' is a statement which is associated with
1 the doctrine of human depravity,
2 the culture epoch theory.
3 transfer of training.
4 gestalt psychology.
5 pragmatism.

162. The desire to associate with others is known as
1 competition. 3 gregariousness.
2 altruism. 4 collectivism.
5 projection.

163. Mutation is a term which refers to
1 deafness in the middle ear.
2 a marked congenital difference in the offspring.
3 a pathological inability to interpret words which can be seen.
4 insensibility to pain.
5 mental disorder due to atrophy of nerve fibers.

164. Supervised study tends to be less advisable for the
1 dull pupil. 3 average pupil.
2 slow pupil. 4 bright pupil.
5 emotional pupil.

TO EACH OF THE SUCCEEDING FOUR QUESTIONS ASSIGN THE ITEM (from the list below) WHICH BEST FITS THE CHARACTERISTIC.
(1 Emotional. (2 Physiological.
(3 Intellectual. (4 Aesthetic.
(5 None of the above.

165. Problem solving.
166. Attitudes.
167. Growth.
168. Fears.

169. In studying a long musical composition, insight will appear more rapidly when which of the following methods is used ?
1 Whole to part method.
2 Part to whole method.
3 Mediating method.
4 Whole versus part method.
5 Rote method.

170. When the learner is allowed to know the results of his efforts, learning is usually
1 more efficient.
2 less efficient.
3 inhibited.
4 attenuated.
5 unaffected.

171. The presence of a single element of past experience sometimes tends to recall the whole experience. This is known as
1 perception. 3 mutation.
2 degeneration. 4 attenuation.
5 redintegration.

172. Psychosomatic problems are thought of in connection with
1 physiological aberrations.
2 psychotic abnormalities.
3 mind-body etiology.
4 epilepsy.
5 myopia.

173. The curve of forgetting shows
1 a gradual increase.
2 a sudden, then more gradual rise.
3 a gradual rise, at first, then levels off.
4 a gradual rise at first, then a more rapid rise. (5 see below*)

174. 'Hemispheral dominance' is a hypothesis which is associated with
1 senility. 3 eclecticism.
2 laterality. 4 irradiation.
5 exogamy.

175. The fact that training in mirror tracing with the right hand assists in similar learning by the left hand is called
1 kinesthesia.
2 cross education.
3 formal discipline.
4 perception.
5 incidental learning.

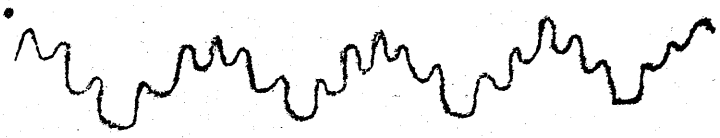
C. Psychology of Music.

176. The phenomena of 'beat-tones' has a functional use, particularly for the
1 pianist. 3 piano tuner.
2 percussionist. 4 cellist.
5 saxophonist.

177. Altering the balance between partials of a given musical tone alters the
1 amplitude. 3 pitch. 5 solfeggio.
2 loudness. 4 timbre.

178. A change in the 'amplitude' of the sound wave produces a change in
1 timbre. 3 frequency.
2 pitch. 4 loudness. 5 duration.

179.

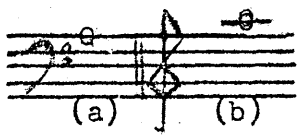


Above is a graphic representation of a sound wave, indicating
1 the absence of a pitch salient.
2 a complex tone.
3 a pure tone.
4 a tone produced by a frequency oscillator.
5 a series of transverse waves.

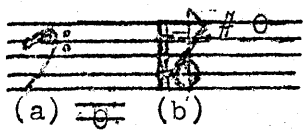
180. The most important determiner of pitch is the
1 decibel.
2 frequency of the third partial.
3 frequency of the first partial.
4 extensity of the vibrato.
5 duration of the tone.

181. An example of the functional application of the phenomena of 'difference tones' may be found in connection with
1 the loudspeaker of a small radio.
2 the manufacture of the Db piccolo.
3 the tuning of the tympani.
4 the theory of dissonant intervals.
5 timbre.

*Addition to question no. 173:
5 a sudden drop, then a gradual rise.

182. 

If tone (a) has a vibration frequency of 220 cycles per second, then tone (b) has a vibration frequency of
1 330 cps. 3 880 cps. 5 1760 cps.
2 515 cps. 4 1080 cps.

183. 

If tone (a) is the fundamental of a series of partials, then which partial is represented by the tone in measure (b)?
1 5th 3 8th 5 14th
2 7th 4 11th

184. All but which of the following statements are true in connection with vibrating strings ?
1 The number of vibrations per second is inversely proportional to the length of the string.
2 the number of vibrations per second is proportional to the square root of the tension to which the string is subjected.
3 the number of vibrations varies inversely as the thickness of the string.
4 the number of vibrations is conversely proportional to the square root of its density.
5 the number of vibrations increases as the temperature decreases.

185. 'Overblowing' on the flute refers to
1 blowing too loud.
2 playing sharp.
3 an incorrect embouchure.
4 playing an octave higher.
5 blowing across the mouthpiece.

186. Sounds are localized in reference to a particular source, largely through that characteristic of tone which is its
1 pitch. 3 intensity.
2 duration. 4 quality. 5 vibrato.

187. The phenomena which characterizes the apprehension of partials as an organismic whole is
1 harmony. 3 fusion.
2 counterpoint. 4 vibration frequency.
5 dissonance.

188. The average limits of audibility in the human being are
1 250 to 100,000 cps.
2 110 to 70,000 cps.
3 64 to 42,000 cps.
4 20 to 20,000 cps.
5 10 to 120,000 cps.

189. 'Threshold of sensitivity' is a term which describes the
1 degree of extroversion present in the personality.
2 lowest level of entry gained by a stimulus.
3 upper limits of audibility.
4 degree of musicality in the individual.
5 ability to perceive pitch differences.

190. The 'auditory ossicles' of the hearing mechanism lie in the
1 outer ear. 3 inner ear.
2 middle ear. 4 auditory nerve.
5 none of the above.

191. In tracing the path of aural transmission through the human ear to the central nervous system, it will be found that the change of the character of the sound wave from physical to nervous energy (or electrical energy) occurs in the
1 cochlea.
2 semi-circular canals.
3 auditory ossicles.
4 eustachian tube.
5 thalamus.

192. Which of the following elements in music requires cortical reaction ?
1 Melody 3 Rhythm 5 Vocal text
2 Harmony 4 Architectonics

193. Which of the following items is least likely the product of continued dissonance on the organism ?
1 Gastric upset
2 Tension
3 Lowering of efficiency
4 Fatigue
5 Synesthesia

194. Which of the following measures is unrelated to the field of music ?
1 Schoen battery
2 Kwalwasser-Dykema tests
3 Meier-Seashore judgment tests
4 Kate Hevner tests
5 Ortmann battery

195. Which of the tests listed below is not intended to examine the musical talent or ability of the individual ?
1 Seashore
2 Kwalwasser-Dykema
3 Schoen
4 Kwalwasser-Ruch
5 Ortmann

196. The best known study of the Seashore Measures of Musical Talent was conducted over a ten-year period by
1 Farnsworth 3 Stanton
2 Mursell 4 Petran 5 Ivanoff

197. The average study of the correlation between musical ability and intelligence finds that it is
1 high and positive.
2 low and positive.
3 zero.
4 low and negative.
5 high and negative.

198. The 'Liebestod' from Wagner's 'Tristan and Isolde' might find a cold or bored response in one individual, while another might find it warming and stimulating. Which of these explanations seems most likely ?
1 One listener is musical and the other is not.
2 One listener favors operatic music and the other does not.
3 The music is long and drawn out.
4 Any musical composition is responded to in terms of past experience.
5 The rhythm is not sufficiently pronounced.

199. That part of the brain which acts as a relay station for all afferent traits including the auditory branch of the eighth cranial nerve, and passes these sensory impulses on to the cerebrum is the
1 cerebellum. 3 thalamus.
2 prefrontal lobe. 4 occipital lobe.
5 precentral gyrus.

200. An 'Iso' principle applied to the psychology of music means that the selection of music for the individual listener is based on
1 a desire to stimulate him rhythmically.
2 a desire to stimulate him through harmonic presentation.
3 a desire to match his present mood.
4 a desire to institute a 'calming effect' on the listener.
5 none of the above.

PART III: MUSIC HISTORY AND THEORY

A. The History of Music.

201. The Gregorian Chant is often referred to as
1 Dorian mode. 3 Hymn to Apollo.
2 Ambrosian mode. 4 Doxology.
5 Plainsong.

202. Orpheus lost Eurydice by
1 neglecting to return suitable thanks to the gods.
2 neglecting her in order to follow the god of music.
3 being unfaithful to her.
4 showing his horror at her appearance as a member of the realm of the dead.
5 looking at her before they had emerged from the underworld.

203. The 'ethos' of ancient Greece referred to
1 the ethical relationship between musicians.
2 the influence of music on the will.
3 a system of transposition.
4 a particular type of wind instrument.
5 a practice of choral singing in the theater.

204. Which of the following instruments is characteristic of the civilization of ancient Greece ?
1 Dulcimer 3 Kithara 5 Rebec
2 Harpsichord 4 Ophicleide

205. Which of the groups named below flourished in Southern France during the 12th and 13th centuries?
1 Minnesingers 3 Trouveres
2 Meistersingers 4 Troubadors
5 Gondoliers

206. All but which one of the following are types of compositions used in 17th century dance suites?
1 allemande 3 masque 5 sarabande
2 courante 4 gigue

207. The 'Habanera' would be thought of in connection with
1 Funiculi, Funiculi.
2 Liebestod.
3 Seguidila.
4 Vesta la Guibba.
5 Largo al factotum.

208. The D'Oyly Carte Opera Company would be most likely to present
1 Parsifal. 3 Don Giovanni.
2 The Messiah. 4 Il Trovatore.
5 The Mikado.

209. A play by Ibsen which is associated with musical composition is
1 The Master Builder.
2 The Doll's House.
3 Peer Gynt.
4 The Lady from the Sea.
5 Hunger.

210. Which of the composers listed below was not a creator of operatic music ?
1 Wagner 3 Mozart 5 Verdi
2 Beethoven 4 Chopin

211. Which composer wrote Lucia di Lammermoor and Don Pasquale ?
1 Bellini 3 Verdi 5 Leoncavallo
2 Donizetti 4 Rossini

212. The Student Prince attended the University of
1 Oxford. 3 Vienna. 5 Paris.
2 Cambridge. 4 Heidelberg.

213. An opera based on a work by Goethe was
1 Lohengrin. 3 Parsifal
2 Faust. 4 Das Liebersverbot
5 Götterdamerung.

214. Which composer wrote Rienzi and Parsifal ?
1 Wagner 3 Beethoven
2 Weber 4 Schumann 5 von Flotow

215. All but which one of these Russian composers is classed with 'The Five'?
1 Moussorgsky 3 Rachmaninoff
2 Borodin 4 Cesar Cui
5 Rimsky-Korsakov

216. Which of the following composers is generally accredited with being the greatest 19th century composer of oratorios ?
1 Berlioz 3 Stainer 5 Handel
2 Elgar 4 Mendelssohn

FOR EACH OF THE FOLLOWING STATEMENTS NAME THE COMPOSER WHO BEST FITS ALL OF THE QUALIFICATIONS:

217. This is an American composer who is known for his application of the jazz idiom to the serious field of writing.
1 Roy Harris 3 Aaron Copeland
2 Howard Hanson 4 Deems Taylor
5 George Gershwin

218. A contemporary composer of the 20th Century, his works are said to be in the post-Wagnerian style, showing the influence of Mahler. His twelve-tone system is typical of his tendency toward atonality.
1 Schonberg 3 R. Strauss
2 Hindemith 4 Delius 5 Bartok

219. A friend of Liszt and Schumann, his life is the story of compositions and concerts. His lovely songs are equalled only by his great symphonies and other large orchestral works.
1 Schubert 3 Tschaikowsky
2 Saint-Saens 4 Brahms
5 Berlioz

220. He is famed for his genius, not only as an operatic writer, but as a librettist and a philosopher.
1 Borodin. 3 Wagner. 5 Lully.
2 Verdi. 4 Puccini.

221. Best known for his songs, he was also a composer of symphonic works and other instrumental pieces.
1 Donizetti 3 Franz 5 Massenet
2 Gounod 4 Schubert

222. At the age of eight he was a choir boy in Vienna. Later he became choirmaster to Prince Esterhazy of Hungary. Mozart and Beethoven were students of his.
1 Bach 3. Haydn 5 Verdi
2 Handel 4. Gluck

223. Orphaned at the age of ten, his first music training was from his older brother. At 18 he was a famed organist. He had a large family, and lived in semi-seclusion most of his life, copying and composing music, and directing church choirs and orchestras.
1 Bach 3 Brahms 5 Gluck
2 Beethoven 4 Mozart

NAME THE OPERA DESCRIBED:

224. Figaro lists his accomplishments in a well known aria, 'Largo al Factotum'.
1 Aida 3 Der Freischutz
2 L'Africaine 4 Barber of Seville
5 Mignon

225. The heroine, who has been working in a cigarette factory, stabs another of the girls, and is placed in the custody of a soldier. After she induces him to let her escape, he himself is arrested and imprisoned.
1 Romeo and Juliet
2 Faust 4 Mignon
3 Louise 5 Carmen

226. An aged man regains his longed for youth by selling his sould to Mephistopheles.
1 Lucia di Lammermoor
2 Rigoletto 4 Don Pasquale
3 Faust 5 Lakme

227. This opera featured the well known story of Walther, his 'Prize Song' and the famed Hans Sachs.
1 Parsifal 3 Die Meistersinger
2 Lohengrin 4 Rienzi
5 The Flying Dutchman

228. This is the fourth of a series of great music dramas by Richard Wagner, dedicated to the exposition of a story of lust and greed for gold and its power. In it, Valhalla perishes in flames, as the Rheingold is returned to the Rhine Maidens.
1 Lohengrin 3 Götterdamerung
2 Parsifal 4 Siegfried
5 Das Rheingold

229. In this famed operatic work, the hero makes his initial appearance as a knight in shining armor, approaching in a boat, pulled by a swan.
1 Parsifal 3 Lohengrin
2 Il Trovatore 4 Die Walkure

230. In this opera, a lady of rank and her friend disguise themselves in order to be hired by two young farmers, but they do it only as a joke and are dismayed to find that they are legally bound to serve their masters a year.
1 Martha 3 The Bohemian Girl
2 La Giocanda 4 Thaïs
5 The Daughter of the Regiment.

231. The young hero is really the son of a ruler, and is travelling in disguise. His love for a young maiden is thwarted by her engagement to her own guardian, the chief executioner, who, in turn sees the hero only as a prospective victim.
1 Sweethearts
2 The Mikado
3 Pirates of Penzance
4 HMS Pinafore
5 Rigoletto

232. The prologue to this opera, sung by Tonio, reminds the audience that the players are of like flesh and blood with themselves, sharing their joys and sorrows, angers and jealousies, love and laughter.
1 Aida 3 Carmen
2 Pagliacci 4 Il Trovatore
5 The Masked Ball

233. This is one of the most famous of love stories, ending in tragedy. A knight assigned the duty of returning to his country the bride of its ruler, is tricked into drinking a love potion with this young maiden. Their resulting love, continuing even after her marriage to the king, eventually results in both their deaths.
1 Tales of Hoffman
2 Romeo and Juliet
3 Lucia di Lammermoor
4 Tristan and Isolde
5 Fidelio

B. Music theory, including conducting, Instrumentation and scoring.

234. All of the tones of the scale are found in which of the following combinations of chords ?
1 I-II-IV 3 III-IV-V
2 III-IV-VI 4 II-VI-VII
5 I-III-V

235. When 'inverted', the Diminished Fifth becomes (a)(an)
1 minor third. 3 augmented fourth.
2 major second. 4 diminished sixth.
5 minor second.

236. The Harmonic Minor Scale is made up of the following intervals in sequence:
1) 1 ½ 1 1 ½ 1½ ½ steps
2) 1 ½ 1 1 ½ 1 1 steps
3) 1 ½ 1 1 1 1 ½ steps
4) 1 1 ½ 1 1 ½ 1 steps
5) 1 1 ½ 1 1 1 ½ steps

237. Which of the following is operatic in form, but generally performed without the benefit of action, scenery or costumes ?
1 an operetta 3 an oratorio
2 a sonata 4 a motet
5 an overture

238. An elaborate vocal solo found in operas and oratorios is
1 a sonata 3 an aria
2 a passpied 4 a motet
5 a madrigal

239. The round is a simple form of a
1 canon. 3 descant. 5 suite.
2 sonata. 4 gigue.

240. Polyphony is characterized particularly by its
1 vertical harmonization.
2 timbre.
3 relation to the dance.
4 linear voicing.
5 rhythmic form.

241. A cadenza is an important part of
1 a concerto. 3 an aria.
2 a suite. 4 a passacaglia.
5 a partita.

242. The following definition best describes which of the terms listed below: "the use of two different keys simultaneously in a composition".
1 Bithematic 3 Homophonic
2 Pentatonic 4 Bitonal 5 Polytonal

243. In 'Form and Analysis' the FIGURE is a larger unit in musical composition than the
1 period. 3 motive.
2 antecedent phrase. 4 movement.
5 consequent phrase.

244. A dance band 'jam session' often features a form of musical composition generally associated with something that is quite formal and forbidding. It is a
1 canon. 3 fugue. 5 toccato.
2 cadenza. 4 partita.

245. A canon is a musical form which has one of the following characteristics:
1 It is always in three parts.
2 It is generally found in violin cadenzas.
3 It never has more than two different subjects.
4 It is used only in music of the church.
5 It is synonymous with a 'round' when set in simple form.

246. All but one of which of the following are products of the dance ?
1 Chaconne 3 Sarabande
2 Suite 4 Gavotte 5 Concertino

247. The fingering of the Eb Alto Saxophone most likely resembles that of the
1 chalameau register of the Bb sop. clarinet.
2 bassoon.
3 flute.
4 C melody saxophone
5 oboe.

248. From the standpoint of fingering, transfer from the Bb cornet would be easiest made to the
1 bass clef baritone.
2 BBb bass.
3 Eb mellophone.
4 French horn in F.
5 Bb trombone.

249. Which of the following instruments is equally well suited for ensemble work in either the brass or woodwind group ?
1 Bass clarinet. 4 Bb trombone
2 French horn 5 Bb Tenor sax.
3 Bb cornet

250. Which instrumentalist needs the best sense of relative pitch ?
1 Bb cornetist 3 Tympanist
2 Bb clarinetist 4 Pianist
5 Flutist

251. The term 'consordini' would most likely appear on the score of which part ?
1 Bb clarinet 3 Organ
2 Snare drum 4 Viola
5 Bb baritone horn

252. All but which one of these terms indicate a decrease in the present tempo ?
1 rallentando 3 ritardando
2 piu mosso 4 ritenuto
5 piu lento

253. In reading an orchestral score, you would expect to find the four sections of the orchestra from top to bottom in this order:
1 WW, String, Brass, Percussion
2 String, WW, Brass, Percussion
3 WW, Brass, Percussion, String
4 Brass, WW, Percussion, String
5 Percussion, Brass, WW, String

254. All but which one of these terms indicate an increase in the present tempo ?
1 accelerando 3 stringendo
2 affretando 4 allargando
5 poco animato

255. Which is the fastest of the tempo markings listed below ?
1 moderato 3 allegretto
2 andantino 4 presto assai
5 allegro non troppo

(GO TO RIGHT HAND COLUMN NEXT)

256. All but which one of these markings indicate a deviation from strict tempo ?
1 Tempo giusto 3 Ad libitum
2 Tempo rubato 4 A piacere
5 Agitato

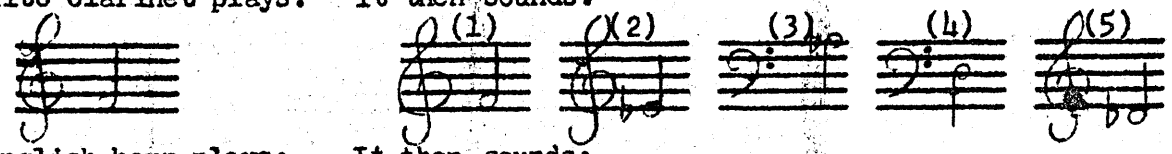
257. Which is the slowest of the tempo markings listed below ?
1 presto 3 larghetto
2 andantino 4 largo 5 adagietto

258. All but which one of the following are representative of the determination of correct tempo ?
1 metronome indication
2 markings, sych as andante, allegro
3 the text, in vocal music
4 the dynamics
5 tradition

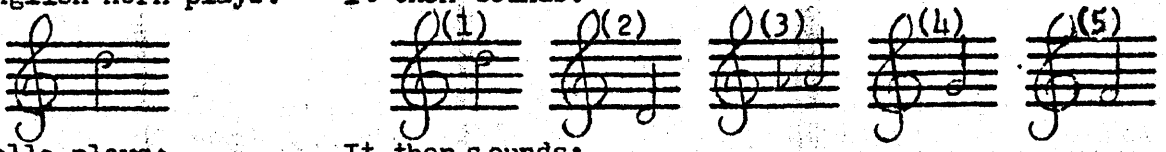
259. A composition with this time signature 𝄵 will probably be conducted in how many beats to the measure ?
1 One 3 Three 5 Six
2 Two 4 Four

In each of the next three questions, a note is printed upon the staff. When fingered and played by the instrument named, which of the tones listed below is sounded in concert pitch ?

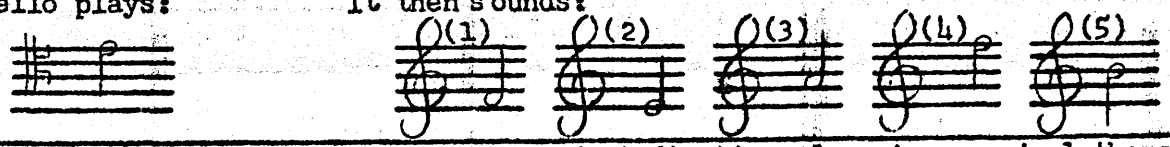
260. Alto Clarinet plays: It then sounds:



261. English horn plays: It then sounds:

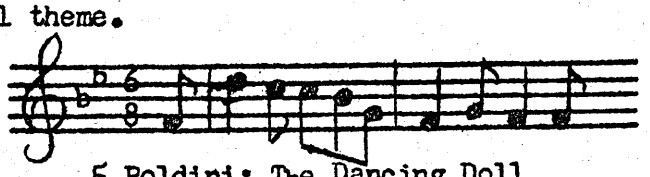


262. Cello plays: It then sounds:



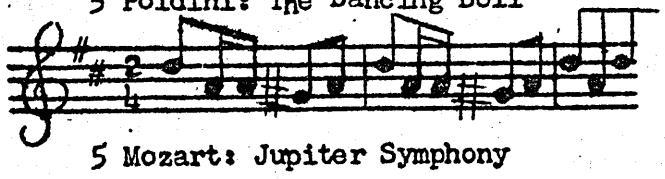
The next group of questions requires the identification of various musical themes, printed for each question. From the choice of titles indicated, mark your answer sheet with the number which corresponds to the correct title for that particular musical theme.

263.



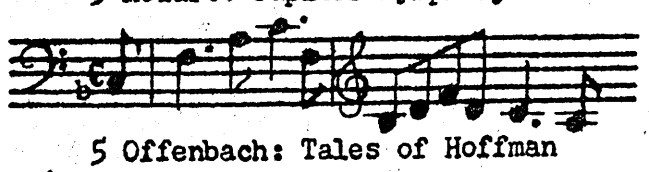
1 Silent Night
2 It Came Upon a Midnight Clear
3 Debussy: Nuages
4 Grieg: Ich Liebe Dich
5 Poldini: The Dancing Doll

264.



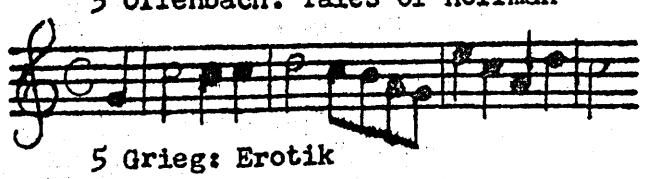
1 Schumann: Piano Concerto(A min)
2 Elgar: Pomp and Circumstance
3 Spiritual: Deep River
4 Schubert: Marche Militaire
5 Mozart: Jupiter Symphony

265.



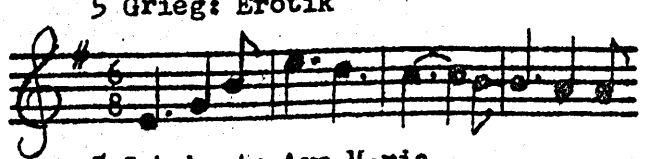
1 Schumann: The Happy Farmer
2 MacDowell: At Sunset
3 Gounod: Berceuse
4 Moszowski: Serenata
5 Offenbach: Tales of Hoffman

266.



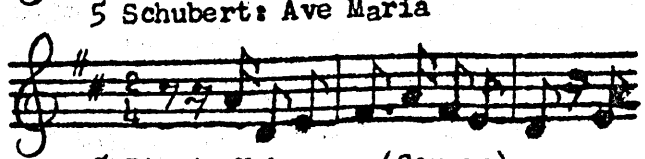
1 Wagner: The Evening Star
2 Handel: Unto Us A Child is Born
3 Brahms: Cradle Song
4 Haydn: The Heavens Are Telling
5 Grieg: Erotik

267.



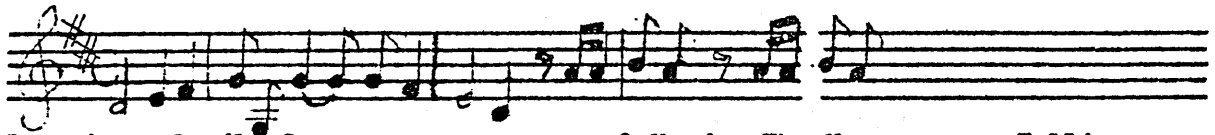
1 Romberg: Serenade
2 Beethoven: Egmont Overture
3 Wagner: The Evening Star
4 Bizet: Habanera (Carmen)
5 Schubert: Ave Maria

268.



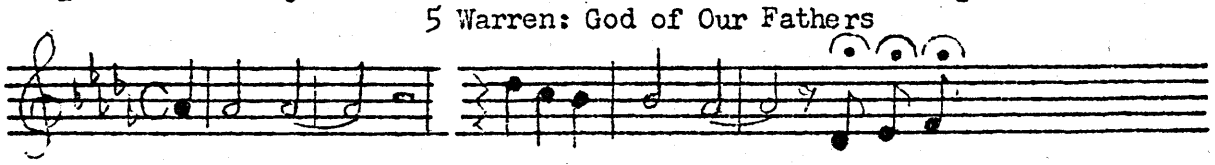
1 Verdi: Anvil Chorus
2 Sullivan: The Lost Chord
3 Handel: Unto Us A Child is Born
4 Brahms: Cradle Song
5 Bizet: Habanera (Carmen)

269.



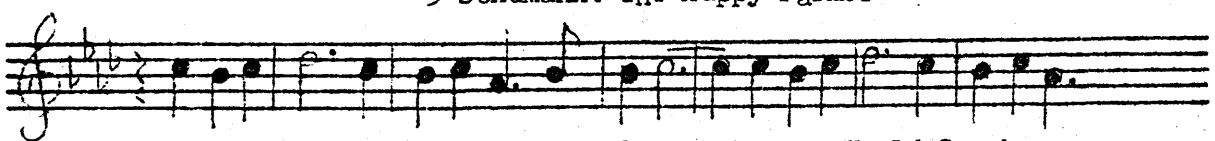
1 Brahms: Cradle Song
2 Handel: Hallelujah Chorus
3 Haydn: The Heavens are Telling
4 Thome: Andante Religioso
5 Warren: God of Our Fathers

270.



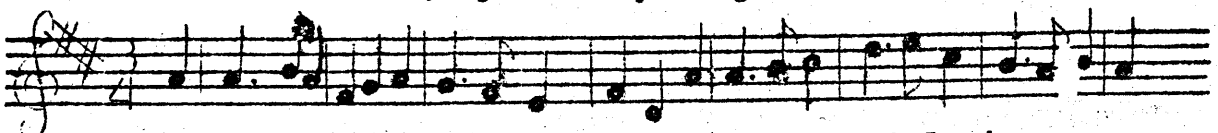
1 Sibelius: Finlandia
2 Wagner: Bridal Chorus(Lohengrin)
3 Malotte: The Lord's Prayer
4 Prayer of Thanksgiving
5 Schumann: The Happy Farmer

271.



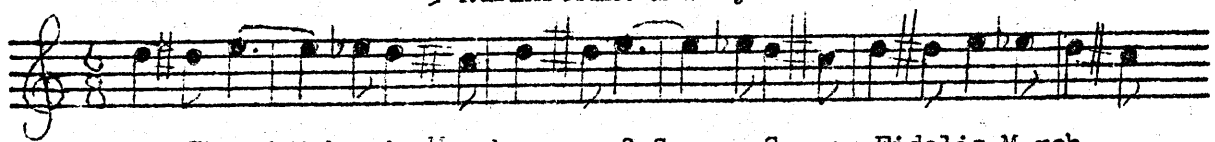
1 Sibelius: Finlandia
2 O Come All Ye Faithful
3 Dvorak: New World Symphony
4 Grieg: Ich Liebe Dich
5 Tschaikowsky: Song Without Words

272.



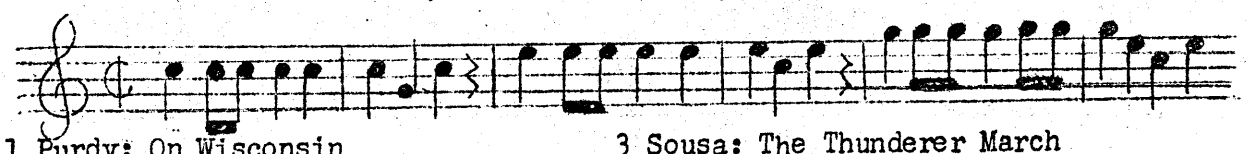
1 Malotte: The Lord's Prayer
2 Saint-Saens: The Swan
3 Haydn: The Clock Symphony
4 Prayer of Thanksgiving
5 Rubinstein: Melody in F

273.



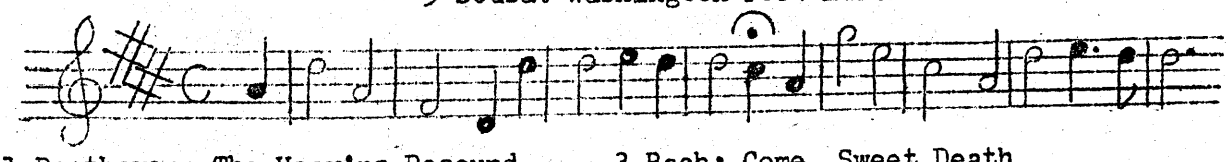
1 Goldman: The Children's March
2 Sousa: Washington Post March
3 Sousa: Semper Fidelis March
4 Elgar: Pomp and Circumstance
5 Bennett: Military Escort March

274.



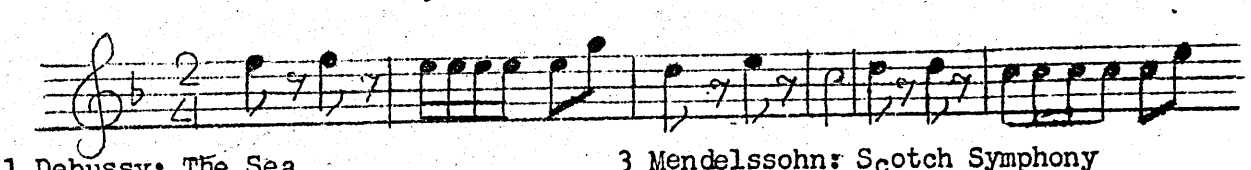
1 Purdy: On Wisconsin
2 Bennett: Military Escort March
3 Sousa: The Thunderer March
4 Fillmore: Men of Ohio March
5 Sousa: Washington Post March

275.



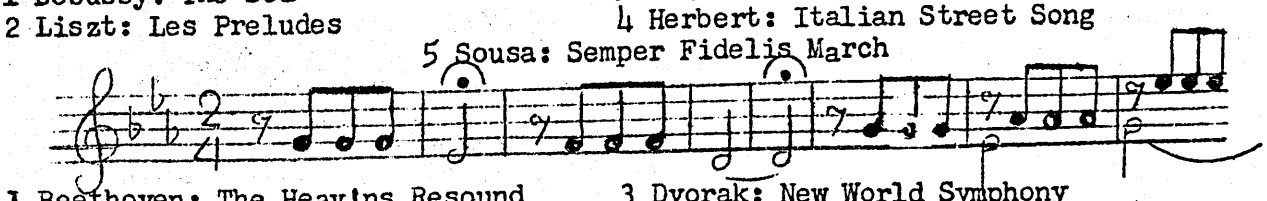
1 Beethoven: The Heav'ns Resound
2 Herbert: Gypsy Love Song
3 Bach: Come, Sweet Death
4 Mozart: Jupiter Symphony
5 Liszt: Les Preludes

276.



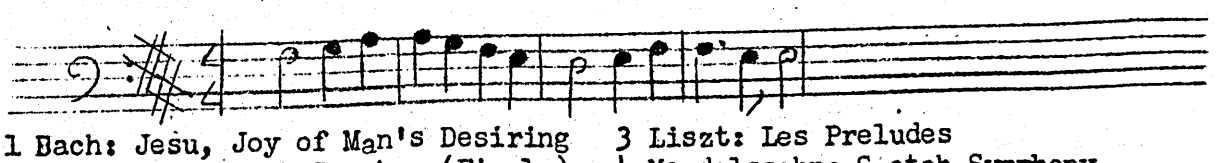
1 Debussy: The Sea
2 Liszt: Les Preludes
3 Mendelssohn: Scotch Symphony
4 Herbert: Italian Street Song
5 Sousa: Semper Fidelis March

277.



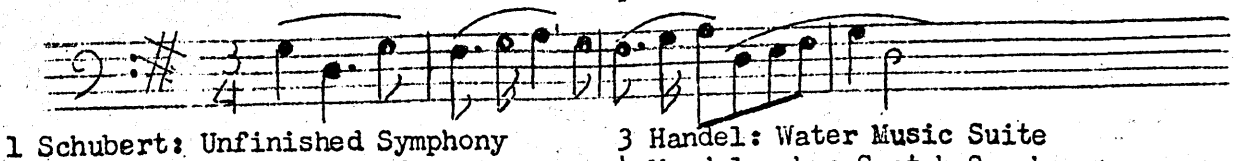
1 Beethoven: The Heav'ns Resound
2 Beethoven: Fifth Symphony
3 Dvorak: New World Symphony
4 Wagner: Siegfried's Idyll
5 Bach: Sleepers Awake (Chorale)

278.



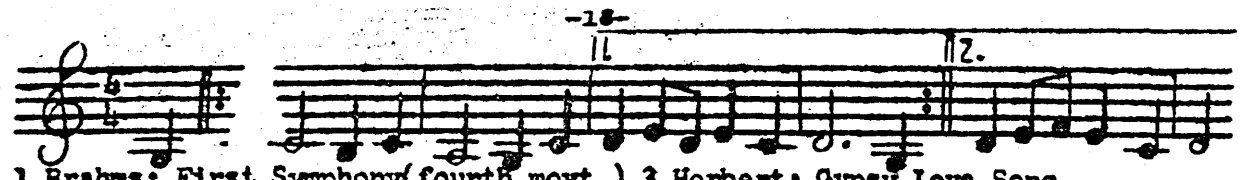
1 Bach: Jesu, Joy of Man's Desiring
2 Beethoven: Ninth Symphony(Finale)
3 Liszt: Les Preludes
4 Mendelssohn: Scotch Symphony
5 Mozart: Jupiter Symphony

279.



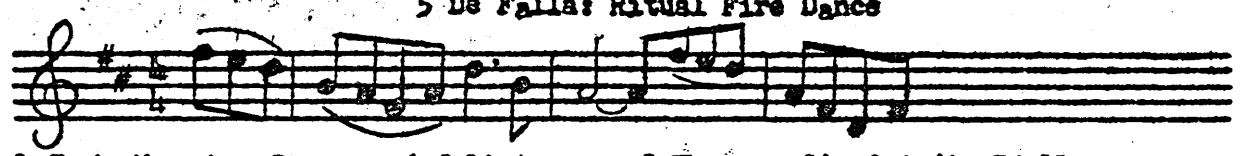
1 Schubert: Unfinished Symphony
2 Tschaikowsky: Romeo and Juliet
3 Handel: Water Music Suite
4 Mendelssohn: Scotch Symphony
5 Mozart: Jupiter Symphony

280.



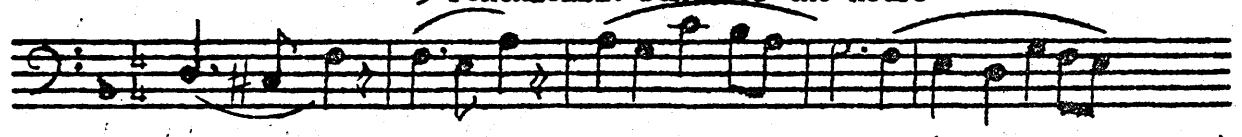
1 Brahms: First Symphony(fourth movt.) 3 Herbert: Gypsy Love Song
2 Tschaikowsky: Song Without Words 4 Mendelssohn: Scotch Symphony
5 De Falla: Ritual Fire Dance

281.



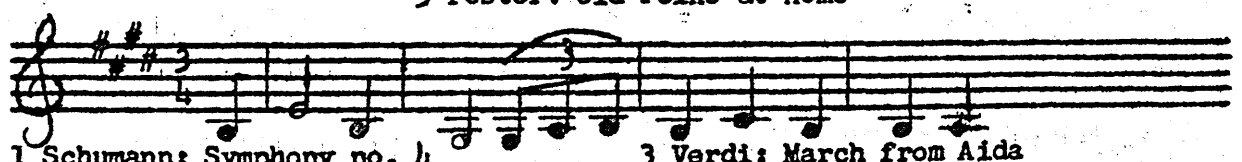
1 Tschaikowsky: Romeo and Juliet 3 Wagner: Siegfried's Idyll
2 Tschaikowsky: 6th Symphony 4 Wagner: Ride of the Valkyries
5 Ponchielli: Dance of the Hours

282.



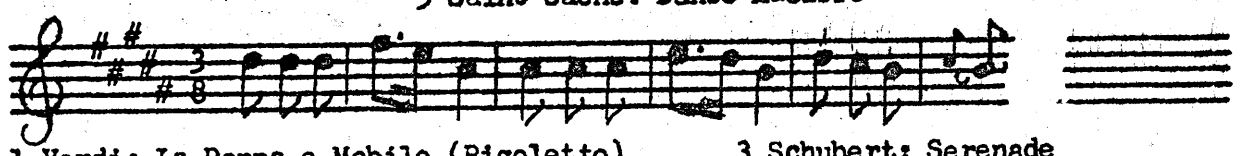
1 Sullivan: Willow, Tit Willow 3 Wagner: Prelude (Die Meistersinger)
2 Bach: Brandenburg Concerto 4 Cesar Franck: Symphony in d minor
5 Foster: Old Folks at Home

283.



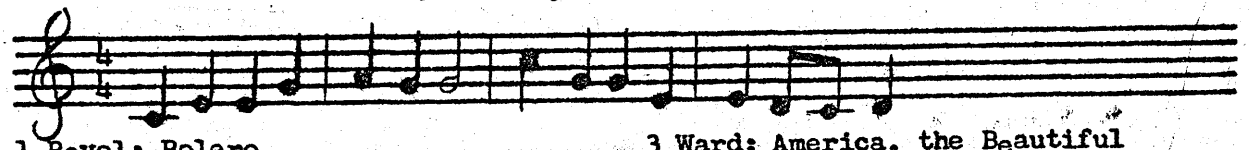
1 Schumann: Symphony no. 4 3 Verdi: March from Aida
2 Leoncovallo: Pagliacci 4 Wagner: Pilgrim's Chorus(Tannhauser)
5 Saint Saens: Danse Macabre

284.



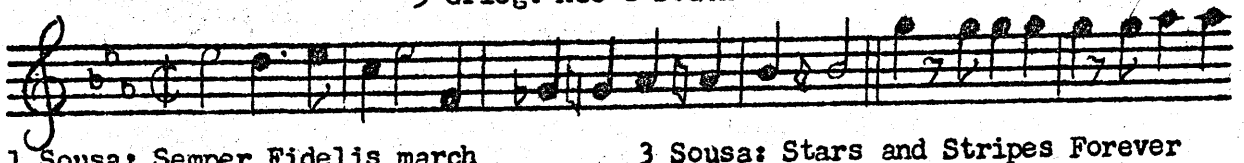
1 Verdi: La Donna e Mobile (Rigoletto) 3 Schubert: Serenade
2 Foster: Jeannie with the Light Brown Hair 4 Verdi: Celeste Aida
5 Debussy: Reverie

285.



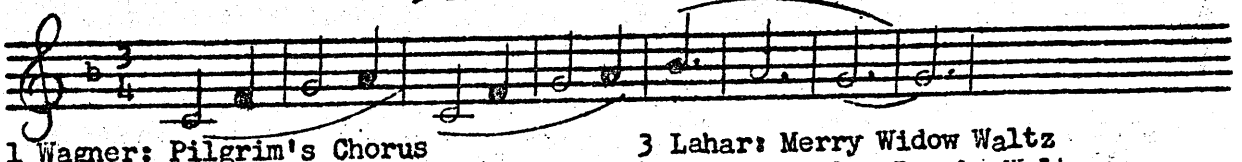
1 Ravel: Bolero 3 Ward: America, the Beautiful
2 Lahar: Merry Widow Waltz 4 Humperdinck: Prayer (Hansel & Gretel)
5 Grieg: Ase's Death

286.



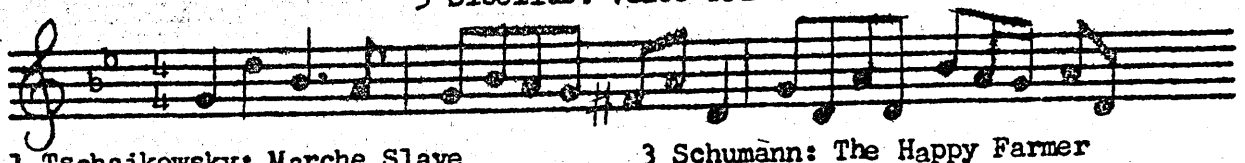
1 Sousa: Semper Fidelis march 3 Sousa: Stars and Stripes Forever
2 Losey: March Gloria 4 Fillmore: Men of Ohio march
5 Prokofieff: Peter and the Wolf

287.



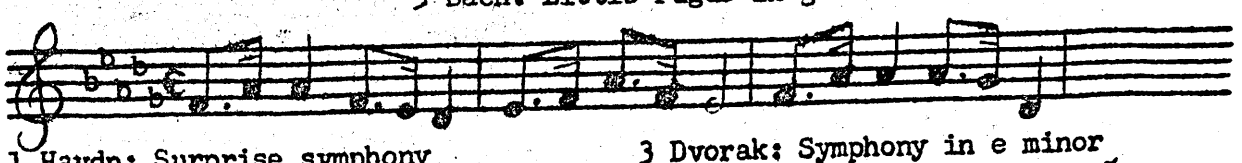
1 Wagner: Pilgrim's Chorus 3 Lahar: Merry Widow Waltz
2 Leoncavvlo: Pagliacci 4 Strauss: Blue Danube Waltz
5 Sibelius: Valse Triste

288.



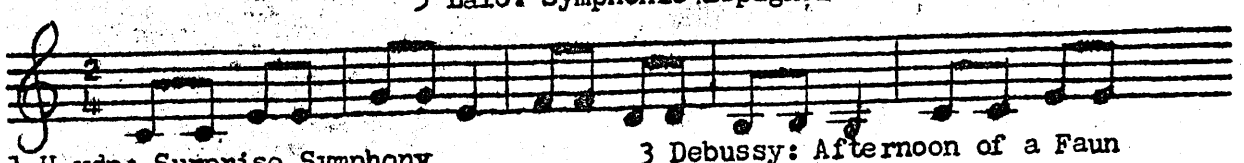
1 Tschaikowsky: Marche Slave 3 Schumann: The Happy Farmer
2 Beethoven: Eroica Symphony 4 Dukas: The Sorcerer's Apprentice
5 Bach: Little Fugue in g minor

289.



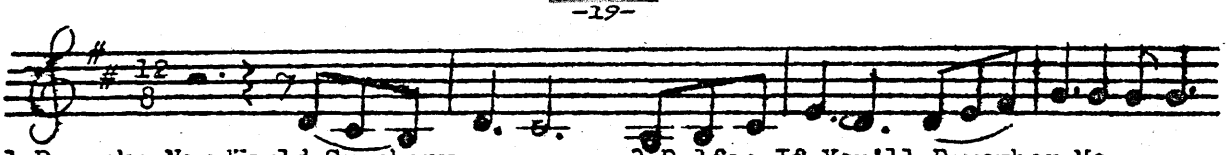
1 Haydn: Surprise symphony 3 Dvorak: Symphony in e minor
2 Ravel: Daphne & Chloe Suite #2 4 Tschaikowsky: Symphony no. 5
5 Lalo: Symphonie Espagnol

290.



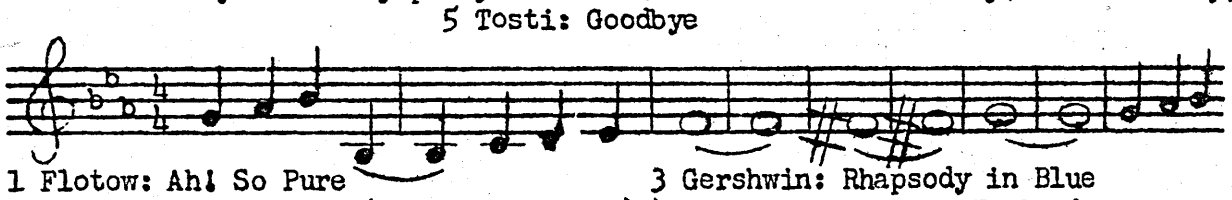
1 Haydn: Surprise Symphony 3 Debussy: Afternoon of a Faun
2 Tschaikowsky: Overture 1812 4 Ravel: Bolero
5 Luther: A Mighty Fortress is Our God

291.



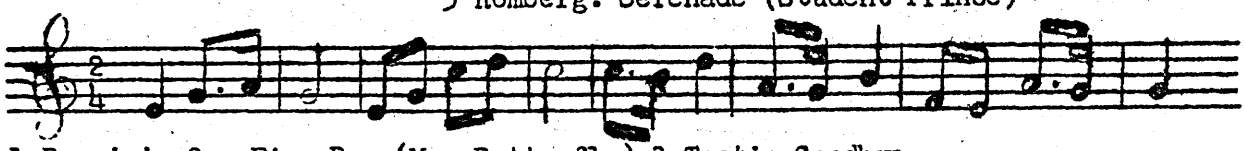
1 Dvorak: New World Symphony
2 Tschaikowsky: Fifth Symphony
3 Balfe: If You'll Remember Me
4 Puccini: One Fine Day(Mme.Butterfly)
5 Tosti: Goodbye

292.



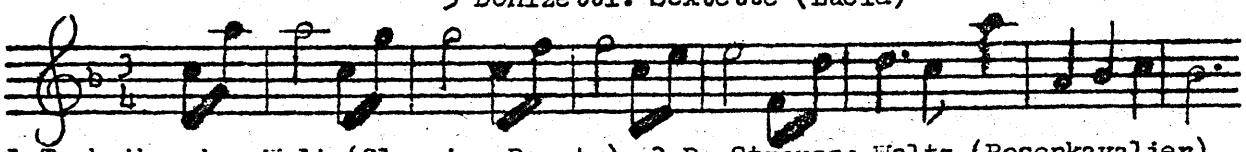
1 Flotow: Ah! So Pure
2 Humperdinck: Prayer (Hansel & Gretel)
3 Gershwin: Rhapsody in Blue
4 Herbert: Babes in Toyland
5 Romberg: Serenade (Student Prince)

293.



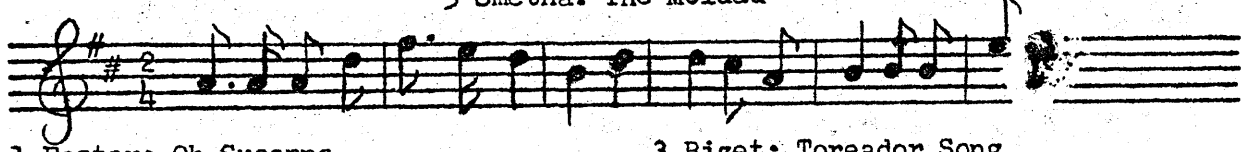
1 Puccini; One Fine Day (Mme.Butterfly)
2 Verdi: Celeste Aida
3 Tosti: Goodbye
4 Flotow: Ah! So Pure
5 Donizetti: Sextette (Lucia)

294.



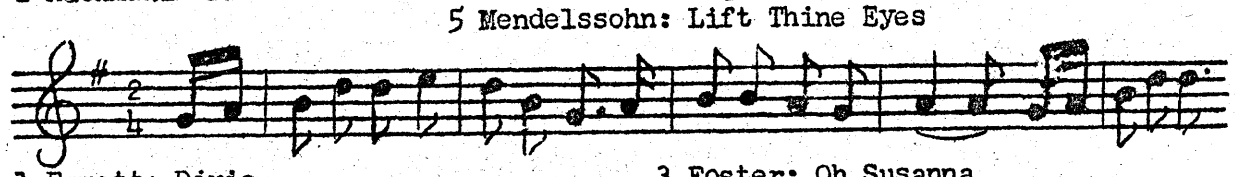
1 Tschaikowsky: Waltz(Sleeping Beauty)
2 Glinka: Russland & Ludmilla
3 R. Strauss: Waltz (Rosenkavalier)
4 Mendelssohn: Lift Thine Eyes
5 Smetna: The Moldau

295.



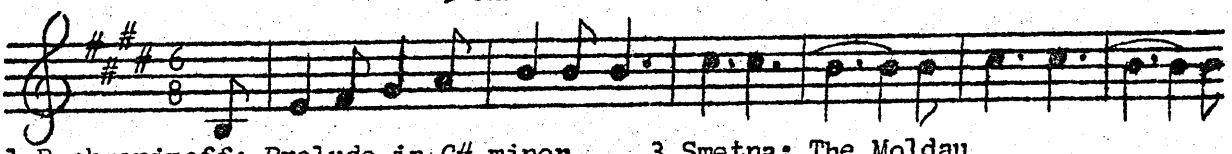
1 Foster: Oh Susanna
2 Rachmaninoff: 2nd Piano Concerto
3 Bizet: Toreador Song
4 English game: Farmer in the Dell
5 Mendelssohn: Lift Thine Eyes

296.

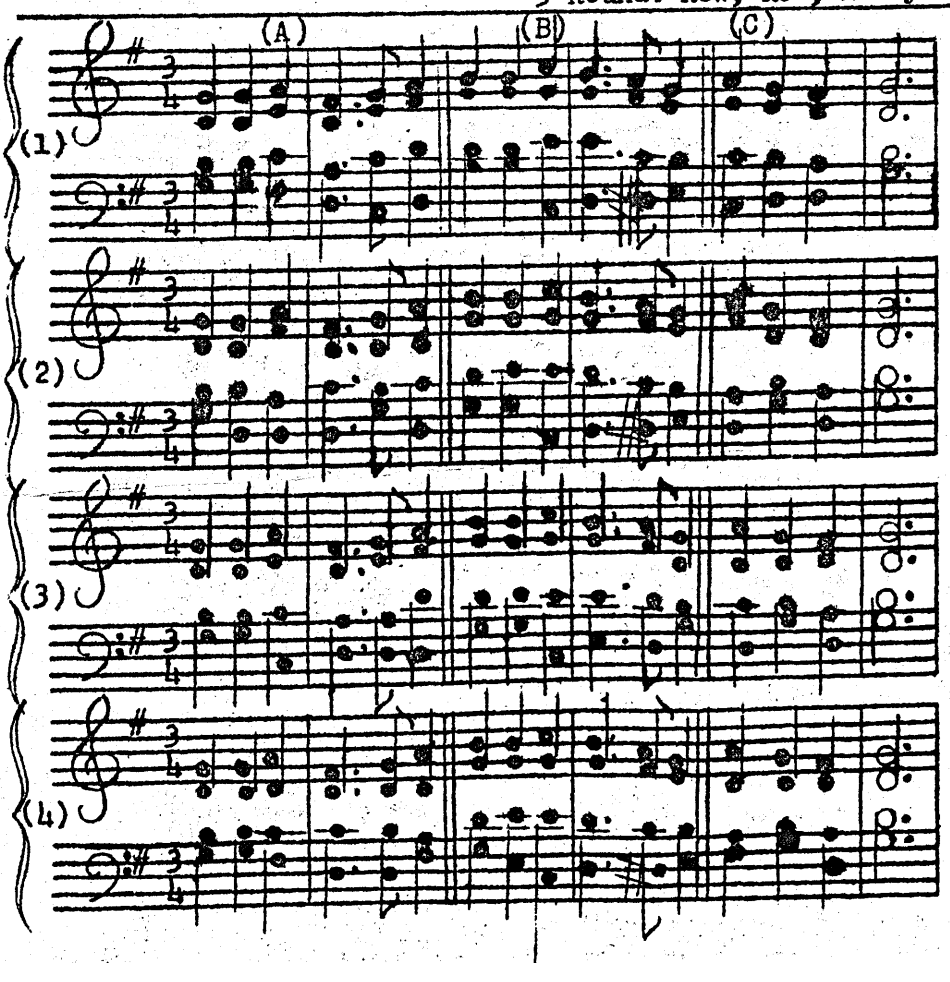


1 Emmett: Dixie
2 Woodbury: Stars of the Summer Night
3 Foster: Oh Susanna
4 Annie Laurie
5 MacDowell: Scotch Poem

297.



1 Rachmaninoff: Prelude in C# minor
2 Tschaikowsky: Chanson Triste
3 Smetna: The Moldau
4 Bizet: Toreador Song
5 Round: Row, Row, Row your boat



TO THE LEFT ARE WRITTEN FOUR DIFFERENT harmonic versions of the first six measures of AMERICA. Each version is divided into two-measure groups, and lettered A, B, and C. Select the correct pair of measures for A, B, and C and check the correct number (1,2,3, or 4) on the score sheet corresponding to the question below that deals with that particular pair of measures:

298. Measure group (A)
299. Measure group (B)
300. Measure group (C)

APPENDIX B

General Achievement Examination for Graduate Majors in Music Education

FORM B

PART I: EDUCATION

A. Educational Administration, Supervision, and Curriculum

1. The Eight-Year Study conducted by the Progressive Education Association dealt with
   1 the curriculum.
   2 compulsory education.
   3 the use of intelligence tests in the schools.
   4 vocational education.
   5 teacher salaries.

2. The strongest influence in the determination of the curriculum is
   1 the teacher.
   2 the board of education.
   3 the administrator.
   4 the public.
   5 the educational philosopher.

3. The 'project' method was pioneered by the work of
   1 Mann 3 Dewey 5 Morrison
   2 Barnard 4 Kilpatrick

4. Revenue for the operation of public schools is largely dependent upon
   1 Property taxes.
   2 state income taxes.
   3 corporation taxes.
   4 state sales tax, beverage, gasoline or cigarette tax.
   5 federal aid.

5. The 6-3-3 plan was adopted primarily to
   1 further decentralize school administration.
   2 provide a more gradual transition between the elementary grades and the high school.
   3 provide for terminal education in the elementary school.
   4 present extra-curricular activities commensurate with the student's level of maturity.
   5 provide for greater activity competition within the school system.

6. Which of the following statements least well represents the function of the junior college ?
   1 To provide terminal education for those who cannot go on to higher ed.
   2 To provide a period for the adolescent who must orient himself with reference to vocations and to the whole body of knowledge.
   3 To prepare students for the upper two years of college and professional schools.
   4 To provide for the student who cannot finance a college education away from home.
   5 To provide teacher training curricula.

7. Under the Dewey-decimal system books on Education are listed in the library under the
   1 200's 3 500's
   2 300's 4 600's
   5 800's

8. Under the Dewey-decimal system books in the field of Music are listed in the library under the
   1 100's 3 400's
   2 200's 4 700's
   5 800's

B. Philosophy of Education

9. The method of obtaining 'truth' through revelation is a method adopted by
   1 Idealism 3 Pragmatism
   2 Realism 4 Eclecticism
   5 Socialism

10. In an anarchy
    1 the individual is supreme.
    2 the government is dominant.
    3 the good of the majority is dominant.
    4 taxation without representation could not exist.
    5 one individual is in power.

11. Which of the following is least likely a characteristic of the philosopher ?
    1 Formulates hypotheses.
    2 Appraises the value of knowledge in man's problems.
    3 Evaluates the use to which knowledge may be put.
    4 Reflects upon the meaning of knowledge
    5 Applies experimental techniques to the hypothesis.

12. Which of the following questions represents the responsibility of the science of education rather than the philosophy of education?
    1 Is it the duty of the school to indoctrinate in the economic and the political ?
    2 Should criticism of the social order be permitted in the schools ?
    3 How far is the working purpose of present school work to prepare the individual for personal success ?
    4 Is the intelligence quotient an important characteristic of prediction in school success ?
    5 Does the teaching of patriotism tend to develop an antagonism toward other people ?

13. A good educational aim should not
    1 survey the present state of experience of pupils.
    2 form a tentative plan of treatment.
    3 keep the plan constantly in view.
    4 be formed by the school administrator alone.
    5 be experimental and modifiable in keeping with the changing situation.

14. The term 'apperception' is most generally connected with
    1 Froebel. 3 Dewey
    2 Herbart 4 Thorndike
    5 Pestalozzi

15. Rousseau's ideal world, in the extreme, would have been governed as
1 a democracy.
2 a monarchy.
3 an anarchy.
4 a dictatorship.
5 totalitarian.

16. The concept of the 'ultimate aim' as being supreme in education is dangerous because it
1 is unachievable.
2 is impractical from the standpoint of the classroom teacher.
3 sets up theoretical limits which tend to place an undesirable restriction on growth, turning it in one direction.
4 is formulated by an educational philosopher.
5 can't be approached scientifically.

17. The theory of mind as a 'tabula rasa' is connected with
1 Rousseau. 3 Locke.
2 Pestalozzi. 4 Herbart.
5 Froebel.

18. Educational philosophy in Colonial America was largely determined by
1 the community council.
2 the church.
3 business and industrial needs.
4 European educational philosophy.
5 the edict of the British crown.

19. Through such works as his 'Orbus Pictus', the theory of complete utilization of the senses in learning was advanced by
1 Luther. 3 Comenius.
2 Locke. 4 Bacon.
5 Calvin.

20. Preparation for 'service in the state' was a basic outcome of education in the philosophy of
1 Plato. 3 Rousseau.
2 The Sophists. 4 Pestalozzi.
5 Herbart.

21. The 'dialectic' method of learning was made important by
1 Luther. 3 Socrates.
2 Comenius. 4 Rousseau.
5 Dewey.

22. In Plato's utopian society, laws, policies, and procedures were to be determined by
1 democratic processes.
2 representatives in government.
3 a single ruler.
4 the wisest and 'best' men.
5 the priesthood.

23. 'Individual rights' were strongly upheld by
1 the Sophists. 3 Plato.
2 Aristotle. 4 Socrates.
5 Pythagoras.

24. Which characteristic listed below best fits the following statement ? 'Education takes place by adding the new to the old and in terms of the old.'
1 Doctrine of human depravity.
2 Theory of apperception.
3 Faculties of mind.
4 Atomistic psychological precepts.
5 Doctrine of formal discipline.

25. For the 'Progressive' educator, education
1 is preparation for life.
2 is preparation for a vocation.
3 makes certain applications to life situations, when possible.
4 is life.
5 is teacher-directed.

26. An 'eclectic' philosophy
1 critically combines several philosophies.
2 was developed by Kohler and Koffka.
3 is a pragmatic philosophy.
4 is based on the S-R bond theory.
5 is typical of behaviorism.

27. The 'Morrison plan' in educational pedagogy
1 relates learning to the apperceptive mass.
2 works best for small groups.
3 utilizes a series of lesson preparation units.
4 is a method for preparing a budget.
5 is a system of administrative planning.

C. HISTORY OF EDUCATION. For each of the following statements, name the educator who best fits all the qualifications.

28. He advocated a system of 'pauper schools' for the working class. He wanted language taught by a conversational method, and advocated the use of Latin as an instrument, and not as an end in itself.
1 Rousseau 3 Herbart
2 Locke 4 Fichte
5 Luther

29. He denied the doctrine of human depravity, and felt that the child was inherently good, but was subsequently corrupted by the evils of society.
1 Comenius 3 Rousseau
2 Herbart 4 Calvin
5 Locke

30. He advocated a continuous system of public education. He founded the University of Virginia.
1 Franklin 3 Cousin
2 Jefferson 4 Sheldon
5 Eliot

31. His work with children had a great effect on the development of modern education. He wrote a book with an intended educational moral, but it was accepted popularly only as a novel.
1 Rousseau 3 Herbart
2 Comenius 4 Pestalozzi
5 Sheldon

32. His theory of the 'apperceptive mass' has modern implications in educational philosophy. His 'five formal steps' found enthusiastic adoption in the American system of education after the turn of the present century.
1 Rousseau 3 Froebel
2 Dewey 4 Herbart
5 Pestalozzi

33. His theory on childhood education as a living thing, rather than preparation for the future led to his founding of the kindergarten.
1 Pestalozzi. 3 Rousseau
2 Froebel. 4 Comenius
5 Locke

34. He was secretary of the first board of education of Massachusetts in 1837. He organized the first three normal schools in the U.S.
1 Dewey 3 Thorndike
2 Barnard 4 Eliot
5 Mann

35. He was strongly associated with the Protestant revolution in Germany. He believed that education should be universal for all classes and sexes and should be compulsory and free.
1 Erasmus 3 Sturm
2 Calvin 4 Locke
5 Luther

36 He believed that education should be state controlled and supported. Music held an important place in his philosophy of education. Education was intended to lead the young toward an understanding of their social obligations in a Christian community. He found himself in conflict with the Anabaptists.
1 Calvin 3 Locke
2 Luther 4 Gentile
5 Rousseau

37. He was a leader in the Jesuit system of education. He was once a Spanish knight.
1 Bacon 3 Huss
2 Melanchthon 4 Loyola
5 Rabelais

38. He was a nobleman, scholar, author and civil official. He desired to prepare the young man for the life of a gentleman. He believed in the private tutor rather than in any school system.
1 Locke 3 Knox
2 Loyola 4 Montaigne
5 Aquinas

ANSWER AS DIRECTED IN EACH QUESTION.

39. Which of the universities named below was not among the first five to be established in the United States ?
1 Harvard 3 Princeton
2 Yale 4 Virginia
5 William and Mary

40. The Dame School is associated with
1 Protestant reformation in Germany.
2 Colonial America.
3 Seventeenth Century France.
4 The Spanish Inquisition.
5 Antiquity.

41. The most important reason for the organization of the early Academy school in the U.S. was the need for
1 teacher training courses.
2 terminal education below the college level.
3 training in law and medicine.
4 a finer study of the arts and literature.
5 preparation for the theatrical profession.

42. The Morrill Act of 1862 provided for
1 the establishment of the junior high school.
2 funds to 'land grant' colleges for agriculture.
3 the U. S. Office of Education.
4 federal aid to endowed universities.
5 compulsory education in the elementary school.

D. MUSIC EDUCATION

43. Which of the items listed below is the least important objective of the 'general music course' in the high school ?
1 To arouse and dev elop an interest in music.
2 To give further contact with music and some experience in producing it.
3 To give information about music that the well-informed person should have.
4 To provide for the talented student.
5 To provide opportunities for the discovery of musical skills.

44. Which of the items listed below is least likely a phase of work in the 'general music course' of the high school ?
1 Unison singing of interesting songs.
2 Attention to diction, phrasing, breathing and basic problems in voice production.
3 Integration of subject matter with other interests in the environment.
4 Use of audio-visual aids where propitious.
5 Study of class piano methods.

45. Which of these items is least valid as a criteria for a listening program in music ?
1 Listening periods should be regularly established so as to come at the same time each week.
2 Listening for general enjoyment should be included in the plans.
3 Listening is a means of musical exploration.
4 Listening may be regarded as an agency for the establishment of discriminating standards.
5 Listening should be considered as a factor in general musical motivation.

46. Which of the following items is the least valid if the desire is for the promotion of full and authentic growth and development?
1 Discriminating choice of materials.
2 Use of the material in such a way as to highlight its musical appeal.
3 Drill is the keynote of success in musical endeavor.
4 Provision for a time schedule which doesn't require that certain materials be given within its specified period.
5 Development of an awareness of meaning before the presentation of skills.

47. If the concept of musical learning as an emergent process is accepted, which of these characteristics regarding the musical staff should appear first in the child's mind ?
1 The musical staff
2 The lines of the staff
3 The spaces of the staff
4 The shape of the melody
5 The clef sign

48. Which of these items listed below best represents a negative outcome of the music contest ?
1 It provides motivation for the students.
2 It tends to promote the performance of a better grade of music.
3 Contest ratings afford the supervisor or school administrator an opportunity to evaluate the music director.
4 Directors may observe the work of others and receive the comments of adjudicators.
5 It provides a stimulus to directors.

49. Which of the following statements is least justifiable in the selection of materials for a music reading program ?
1 The material is differentiated to provide for the slow, the average, and the talented pupils.
2 The material is written to fit a logical scheme of how to develop music reading, presented in a fixed outline of study.
3 Teachers are encouraged to adapt it to the interests and abilities of the class.
4 Difficult material may be used when it is requested by the children in an integrated program.
5 Drawings and illustrations are important when related to the spirit of the text and the music.

50. Which of the following concepts is not a valid concept of music reading in a modern, progressive education situation?
1 Music reading should be considered as a skill subject, to be approached on a mathematical basis and an intellectual basis for greater simplicity.
2 Music reading is pursued as a means of obtaining quickly and accurately the ends sought in some or all other aspects of music study.
3 Music reading should be an activity pursued and even requested by the students in response to felt needs.
4 Music reading is to be considered as one means of arriving at an adequate appreciation of what the composer has tried to express through complex notation.
5 The music reading program develops according to pupil needs which make themselves evident in connection with other music endeavors.

51. Free bodily movement is a fundamental device for the teaching of rhythm. Which of these items is least valid from the standpoint of the music class?
1 Movements must be large, co-ordinated and free-flowing.
2 The movement is tied closely to an auditory awareness of the music.
3 The response is pointed up and supported in terms of the music.
4 The technique of the dance is stressed.
5 The dancer is aware of sound and movement as a whole.

52. From the standpoint of good educational principles, which of these suggestions is most important in regard to the rhythm band ?
1 There should be a good supply of instruments.
2 Children should be encouraged to take a great deal of initiative in planning the ensemble and choosing the instruments to use.
3 Beating time is an experience that children can share.
4 The children should be shown the correct ways of holding and using the instruments.
5 The teacher should conduct the band.

53. Intrinsic motivation in the school music situation is represented by
1 the presentation of awards such as pins, letters, and certificates.
2 the provision for social functions.
3 trips made with athletic teams.
4 the development of insight into musical values through study and appreciation.
5 an adequate grading or marking system.

54. Which of these items is least valid in respect to a good music reading program?
1 The teacher should not attempt to cover too much ground, but rather concentrate on particular pieces.
2 Materials should be selected that favor rapid, progressive eye movts.
3 Material should be interesting.
4 Reading involves the grasping of meaningful wholes.
5 Reading should be taught in a musical context.

55. From the standpoint of tone production by primary grade children, which of these factors is most significant?
1 Knowledge of correct breathing.
2 Knowledge of correct enunciation techniques.
3 Practice with neutral syllables.
4 Imitation of the teacher's voice quality.
5 Study of melodic construction.

56. Teaching rote songs is a technicue which is not used beyond the
1 2nd grade
2 4th grade
3 7th grade
4 9th grade
5 none of the above

57. The school music contest is most likely to draw criticism from
1 the school music director.
2 the school administrator.
3 the private teacher of music.
4 the chamber of commerce.
5 the mental hygienist.

58. The most valid criticism of the pre-orchestral instrument of a wind variety in the elementary grades is its
1 cost.
2 poor intonation.
3 lack of utility value.
4 insanitary characteristics.
5 confusing fingering.

59. Which of these instruments has least value as a 'space frame' in the elementary music program ?
1 Tambourine 3 Tuned glasses
2 Piano 4 Melody Bells
5 Xylophone

60. From the standpoint of the music teacher, which of these items is least important as a point of emphasis at the intermediate grade level ?
1 Establishment of good attitudes.
2 Teaching of instrumental technique.
3 Use of children's interests in selecting reading as well as rote material.
4 Understanding of levels of ability.
5 Need for making all music reading purposeful.

61. Which of these subject areas correlates least well with music in an integrated program of education in the schools ?
1 Physical educ. 3 Art
2 History 4 Biological Sciences
5 Physiological sciences

62. The greatest drawback in school operetta production in comparison with other types of musical performance is
1 the lack of suitable and worthwhile music materials.
2 the lack of time for rehearsals.
3 the resentment on the part of other teachers toward the music dept.
4 the indifference of the students.
5 the expense.

63. Dalcroze Eurythmics are used as a technique in connection with the child who is studying piano in order to facilitate his
1 grasp of rhythmic problems.
2 sense of harmonic structure.
3 ability to perceive the melodic line as a whole.
4 finger dexterity.
5 ability to play major and minor scales.

64. The high school Madrigal Club is a group of musicians who are organized together primarily
1 to play in instrumental ensemble.
2 to produce operettas and light musical shows.
3 to sing madrigals.
4 as a social organization among music students.
5 for the study of piano ensemble music.

65. In its formative years, which of these school musical groups tended to place more emphasis on the social aspects of its organizational activities than the others ?
1 Glee club
2 General chorus
3 A Cappella Choir
4 Band
5 Orchestra

66. If the physical mechanism for vocal sound production is divided into three categories—the bellows, the vibratory structures, and the resonators, all but which of the following anatomical parts fall under the first heading (bellows) ?
1 Lungs 3 Larynx
2 Trachea 4 Bronchii
5 Diaphragm

67. Constant re-checking and re-classification of voices is most necessary at the
1 primary level.
2 intermediate level.
3 jr. high level.
4 sr. high level.
5 jr. college level.

68. Which of the factors listed below will probably have the greatest effect on the musical interests of the pre-school child ?
1 Radio
2 Phonograph
3 Singing voice of the mother
4 Children's song books
5 Piano at home

69. Which of the music programs listed below is the most likely illustration of democracy in the high school ?
1 Band 3 Glee clubs
2 Orchestra 4 Mixed chorus
5 General music class

70. While sight reading ability is important to all musical performance groups, it is most necessary for which of these listed below ?
1 A Cappella Choir 3 Mixed chorus
2 Glee club 4 Band
5 Orchestra

71. 'Tessitura' of the singing voice refers to its
1 timbre. 3 usable range.
2 extent of vibrato 4 strength.
5 extent of training.

72. In choral singing, the most important determiner of the proper tempo is
1 the time signature.
2 the dynamic marking.
3 the text.
4 the ability of the group.
5 the melodic line.

73. The NSBOVA publishes
1 The Music Educators Journal.
2 The Journal of Musicology.
3 The Instrumentalist.
4 Competition-festival lists.
5 The Music Education Source Book.

74. Typical of a good parade march is an interesting countermelody in the
1 clarinets. 3 trombones.
2 trumpets. 4 basses.
5 French horns.

For each of the following statements, name the Music Educator listed below them who best fits all of the qualifications:

75. He assembled a National High School orchestra of 250 players from the U.S. for the National Music Supervisor's Conference in 1926, and at subsequent meetings. He is known for his directorship of the National Music Camp at Interlocken.
1 Giddings 3 Hanson
2 Beach 4 Maddy
5 Revelli

76. He is best known as the founder of public school music in the U.S.
1 Billings 3 Mason
2 W. Aiken 4 Woodbridge
5 Loomis

77. His work in the Minneapolis schools from 1912 is well known. His efforts on behalf of the music reading program and his theory, 'Hands off--let the children do their own learning' are similar to the philosophy of Frances Howard.
1 Dann 3 Farnsworth 5 Coe
2 Maddy 4 Giddings

ANSWER AS DIRECTED IN EACH QUESTION

78. The official beginning of Public School music in the U.S. is dated
1 1789. 3 1876. 5 1905.
2 1838. 4 1892.

79. The primary requisite for choral effectiveness is
1 rhythmic precision.
2 clear enunciation.
3 adequate instrumental accompaniment.
4 beauty of tone.
5 careful selection of materials.

80. School music to the end of the 19th century was characterized by emphasis on
1 the school orchestra.
2 the A Cappella choir.
3 music appreciation.
4 music reading.
5 the talented student.

81. Which of the instruments listed below affords the best substitute for the oboe in a solo passage in the school band ?
1 Bb clarinet 3 Muted trumpet
2 Flute 4 French horn
5 Bb Soprano Saxophone

82. Which of the following items is the greatest potential danger for the high school band member who also plays in a dance band ?
1 Development of inaccurate rhythm habits.
2 Distaste for classical types of music.
3 Development of a snobbish attitude toward the regular high school band musicians.
4 Development of wrong tone production habits.
5 Poor attendance at regular band rehearsals and functions.

83. The junior high school mellophone player most likely will be shifted to which of these instruments in the high school band or orchestra ?
1 French horn 3 Cornet
2 Trombone 4 Baritone
5 Tuba

84. The school band generally tunes to the tone of concert
1 F 3 Bb 5 C
2 A 4 Eb

85. Which of the instruments listed below is least logical for use by the elementary school child ?
1 Bb cornet 3 Flute
2 Bb clarinet 4 Violin
5 French horn

PART II: PSYCHOLOGY

A. General Psychology

86. Hedonic tone relates most closely to
1 a feeling of inferiority.
2 binaural hearing.
3 the James-Lange theory of emotion.
4 pleasant feelings caused by physiological factors.
5 synesthesia.

87. Olfactory characteristics pertain to
1 hearing. 3 smelling. 5 touching.
2 seeing. 4 tasting.

88. The extrovert is most likely to be
1 thwarted. 3 gregarious.
2 withdrawn. 4 inhibited. 5 regressed.

89. A secondary sensation in one sensory field produced by a primary sensation in another sensory field is known as
1 mutation. 3 synesthesia.
2 a syndrome. 4 dualism. 5 praxiology.

90. The tendency to perceive an incomplete figure as a complete one is called the principle of
1 collective representation.
2 closure.
3 correlation.
4 convergence.
5 crossed reflex.

91. Learning differs from maturation in that maturation is
1 only acquisition.
2 only reproduction.
3 modification of reaction through previous practice.
4 change in behavior through physiological growth.
5 dependent on inherited traits.

92. The case history method of investigation is most characteristic of
1 comparative psychology.
2 physiological psychology.
3 structural psychology.
4 clinical psychology.
5 behavioristic psychology.

93. A motor achievement test is used to analyze
1 amazement. 3 maturation.
2 empathy. 4 tonicity.
5 intelligence.

94. In states of extreme emotion, the digestive processes
1 are increased.
2 are inhibited.
3 remain as before.
4 cease momentarily, but resume immediately.
5 increase momentarily, but are gradually inhibited.

ASSIGN EACH OF THE FOLLOWING FOUR QUESTIONS THE CORRESPONDING NEED FROM THIS LIST:
(1) Ego (2) Social (3) Physiological
(4) Indeterminate (5) Aesthetic

95. Belongingness.
96. Cooperation.
97. Attaining individuality.
98. Protection.

99. A state of emotion can be produced in an individual by the injection of
1 thyroxin. 3 adrenalin.
2 insulin. 4 calcium.
5 glycogen.

100. Which of the following is least true in regard to intelligence ?
1 It is a capacity for behaving in a certain manner.
2 It is an inherited capacity.
3 It is little affected by nurture.
4 It is synonymous with knowledge.
5 The capacity matures during childhood and adolescence.

101. A test which is intended to discover whether or not a subject would succeed in the field of music is called
1 an intelligence test.
2 a performance test.
3 an aptitude test.
4 an essay test.
5 none of the above.

102. The maze test is used to measure an animal's
1 reasoning ability.
2 instinctive sense of direction.
3 learning ability.
4 visual acuity.
5 perseverance.

103. Which of the items listed below is not a biological motivation ?
1 Hunger 3 Pain 5 Reproduction
2 Thirst 4 Vanity

104. When two motives are not in accord we have a
1 neurosis. 3 phobia. 5 compulsion.
2 repression. 4 conflict.

105. Which of the following is not a syndrome of insanity ?
1 Myopia 3 Paranoia
2 Paresis 4 Mania 5 Dementia praecox

106. The theory of the conditioned response could best be associated with the
1 fear at a first parachute jump.
2 tendency to resist innovations in government.
3 subconscious feeling of a need for leadership.
4 patriotic feeling that accompanies the sight of the American flag.
5 cruelty of mob action in contrast with the feelings of any individual member of that group.

107. Mendel, the Austrian monk developed his theories of heredity through his work with
1 white mice. 3 rose bushes.
2 rabbits. 4 garden peas.
5 pear trees.

108. Credited with the founding of Behaviorism is
1 Cyril Burt. 3 Karl Pearson.
2 James Cattell. 4 John Watson.
5 Carl Jung.

109. The theory of a conditioned reflex was stimulated by a famous experiment by
1 Porteus. 3 Pavlov.
2 James. 4 Gesell.
5 Wundt.

110. Credited with the present day classification of mental diseases is
1 Louttit. 3 Mesmer. 5 Seguin.
2 Doll. 4 Kraepelin.

B. Educational Psychology & Measurements.

111. All but which one of the following are examples of a 'group-type' test ?
1 Army Alpha 3 Kuhlmann-Anderson
2 CAVD Scale 4 Rorschach
5 Henmon-Nelson

112. Most of the general intelligence tests now in use emphasize
1 mechanical ability.
2 linguistic ability.
3 mathematical ability.
4 social adaptation.
5 puzzle solving.

113. Aptitude tests are designed to
1 measure psychosomatic aberrations.
2 measure intelligence.
3 evaluate a developmental schedule.
4 predict future success in a field.
5 evaluate past performance.

114. The measurement of skills and information is achieved best by use of
1 aptitude tests.
2 intelligence tests.
3 achievement tests.
4 projective techniques.
5 psychoanalysis.

115. A prognostic test is used for
1 diagnosis.
2 prediction.
3 measurement of intelligence.
4 determining interests.
5 measurement of motor skills.

116. IQ equals
(1) MA/CA (3) AQ x MA (5) AQ x CA
(2) CA/MA (4) MA x CA

117. The Accomplishment Quotient is
1 a measure of ability in the arts.
2 an expression of relationship between educational age and mental age.
3 an index of the learner's standing in a particular school subject.
4 a formula for comparing the work of various students in the class.
5 a mathematical representation of intelligence.

118. A child with an MA of 10 has an IQ of 115. His brother with a CA of 10 also has an MA of 10. Therefore, the CA of the first child is
1 greater. 3 lesser.
2 the same. 4 invalid.
5 indeterminate.

119. A measure which affords like results on subsequent re-testing is said to be
1 standardized. 3 valid.
2 variable. 4 weighted.
5 reliable.

120. A measure which is known to test what it purports to test is said to be
1 standardized. 3 valid.
2 variable. 4 weighted.
5 reliable.

121. The average or median IQ of a large population would fall on or near which of these figures ?
1 75 (3 90 (5 115
2 85 (4 100

122. 'Cephalic index is a term used to
1 classify phobias.
2 determine hemispheral dominance.
3 measure quartile deviations.
4 measure head size.
5 measure the psychogalvanic reflex.

correlation is
1 of the same value as a positive correlation of the same size.
2 of lesser value than a positive correlation of the same size.
3 of greater value than a positive correlation of the same size.
4 of no value.
5 a rare occurrence.

124. The median is a measure of central tendency which is the
1 score that occurs most frequently in a series of ungrouped scores.
2 sum of the separate scores in a series, divided by their number.
3 point below and above which lie one-half of the scores.
4 average deviation from the mean.
5 none of the above.

125. Chi-Square test is
1 a test of the reliability of an achievement test,
2 a device for evaluating the relationship between four frequency polygrams.
3 a statistical method of determining the degree to which an obtained frequency curve fits the normal curve.
4 a measure used in partial correlation problems.
5 a test of motor ability.

126. Between the mean and $\pm 1\ \sigma$ of a normal frequency distribution lie approximately
1 one-half of the cases.
2 one-third of the cases.
3 ninety per cent of the cases.
4 two-thirds of the cases.
5 ten per cent of the cases.

127. The 'split-half' method is used in the examination of a test for
1 validity.
2 reliability.
3 correlation accuracy.
4 standard error of estimate.
5 percentile rank.

128. Given a normal distribution with a mean of 12 and σ of 6, approximately what percentage of the cases falls between 6 and 18 ?
1 75% 3 68% 5 38%
2 33 1/3% 4 95%

129. If the rank orders of 100 subjects on two separate tests are exactly the same, the coefficient of correlation between them will be
1 +1.00 3 +.50 5 +100.00
2 −1.00 4 0.00

130. The 'Law of Effect' was postulated by which of the men listed below ?
1 Watson 3 Wheeler 5 Titchener
2 Herbart 4 Thorndike

131. Which of these men is best known for his work on 'Remembering and Forgetting' ?
1 Ebbinghaus 3 Paterson 5 Pavlov
2 Binet 4 Holzinger

132. Which of the names listed below represents an important investigator in the field of adult learning ?
1 Binet 3 Galton 5 L.Hollingworth
2 Thorndike 4 Gesell

133. The desire to associate with others is known as
1 competition. 3 gregariousness.
2 altruism. 4 collectivism.
5 projection.

134. 'Ontogeny repeats the phylogeny' is a statement which is associated with
1 the doctrine of human depravity.
2 the culture epoch theory.
3 transfer of training.
4 gestalt psychology.
5 pragmatism.

135. Mutation is a term which refers to
1 deafness in the middle ear.
2 a marked congenital difference in the offspring.
3 a pathological inability to interpret words which can be seen.
4 insensibility to pain.
5 mental disorder due to atrophy of nerve fibers.

136. Supervised study tends to be less advisable for the
1 dull pupil. 3 average pupil.
2 slow pupil. 4 bright pupil.
5 emotional pupil.

TO EACH OF THE SUCCEEDING FOUR QUESTIONS ASSIGN THE ITEM (from the list below) WHICH BEST FITS THE CHARACTERISTIC:
(1) Emotional. (2) Physiological.
(3) Intellectual. (4) Aesthetic.
(5) None of the above.

137. Problem solving.
138. Attitudes.
139. Growth.
140. Fears.

141. In studying a long musical composition, insight will appear more rapidly when which of the following methods is used ?
1 Whole to part method
2 Part to Whole method.
3 Atomistic method.
4 Whole versus part method.
5 Rote method.

142. When the learner is allowed to know the results of his efforts, learning is usually
1 more efficient.
2 less efficient.
3 inhibited.
4 attenuated.
5 unaffected.

143. The presence of a single element of past experience sometimes tends to recall the whole experience. This is known as
1 perception. 3 mutation.
2 degeneration. 4 attenuation.
5 redintegration.

144. Psychosomatic problems are thought of in connection with
1 physiological aberrations.
2 psychotic abnormalities.
3 mind-body etiology.
4 epilepsy.
5 myopia.

145. 'Hemispheral dominance' is a hypothesis which is associated with
1 senility. 3 eclecticism.
2 laterality. 4 irradiation.
5 exogamy.

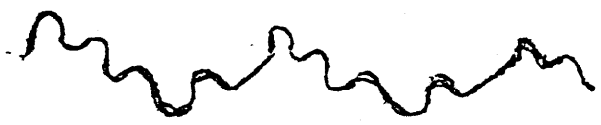
C. Psychology of Music.

146. The phenomena of 'beat-tones' has a functional use, particularly for the
1 pianist. 3 piano tuner.
2 percussionist. 4 cellist.
5 saxophonist.

147. Altering the arrangement pattern of the partials of a given musical tone alters the
1 amplitude. 3 pitch. 5 solfeggio.
2 loudness. 4 timbre.

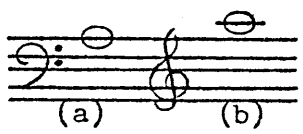
148. A change in the 'amplitude' of the sound wave produces a change in
1 timbre. 3 frequency.
2 pitch. 4 loudness. 5 duration.

149.

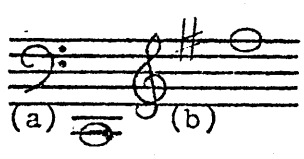


Above is a graphic representation of a sound wave, indicating
1 the absence of a pitch salient.
2 a complex tone.
3 a pure tone.
4 a tone produced by a frequency oscillator.
5 a series of transverse waves.

150. The most important determiner of pitch is the
1 decibel.
2 frequency of the third partial.
3 frequency of the first partial.
4 extensity of the vibrato.
5 duration of the tone.

151. 

If tone (a) has a vibration frequency of 220 cycles per second, then tone (b) has one of
1 330 cps. 3 880 cps. 5 1760 cps.
2 515 cps. 4 1080 cps.

152. 

If tone (a) is the fundamental of a series of partials, then which partial is represented by the tone in measure (b) ?
1 5th 3 8th 5 14th
2 7th 4 11th

153. 'Overblowing' on the flute refers to
1 blowing too loudly.
2 playing sharp.
3 an incorrect embouchure.
4 playing an octave higher.
5 blowing across the mouthpiece.

154. Sounds are localized in reference to a particular source, largely through that characteristic of tone which is its
1 pitch. 3 intensity. 5 vibrato.
2 duration. 4 quality.

155. The phenomena which characterizes the apprehension of partials as an organismic whole is
1 harmony. 3 fusion.
2 counterpoint. 4 vibration freq.
5 dissonance.

156. The average limits of audibility in the human being are
1 250 to 100,000 cps.
2 110 to 70,000 cps.
3 64 to 42,000 cps.
4 20 to 20,000 cps.
5 10 to 120,000 cps.

157. 'Threshold of sensitivity' is a term which describes the
1 degree of extroversion present in the personality.
2 lowest level of entry gained by a stimulus.
3 upper limits of audibility.
4 degree of musicality in the individual.
5 ability to perceive pitch differences.

158. The 'auditory ossicles' of the hearing mechanism lie in the
1 outer ear. 3 inner ear.
2 middle ear. 4 auditory nerve.
5 none of the above.

159. In tracing the pathway of aural transmission through the human ear to the central nervous system, it will be found that the change of the character of the sound wave from physical to nervous energy (or electrical energy) occurs in the
1 inner ear.
2 semi-circular canals.
3 eustachian tube.
4 thalamus.
5 auditory ossicles.

160. Which of the following elements in music requires cortical reaction ?
1 Melody 3 Rhythm 5 Vocal text
2 Harmony 4 Architectonics

161. Which of the following items is least likely the product of continued dissonance on the organism ?
1 Gastric upset
2 Tension
3 Lowering of efficiency
4 Fatigue
5 Synesthesia

162. Which of the tests listed below is not intended to examine the musical talent or ability of the individual ?
1 Seashore
2 Kwalwasser-Dykema
3 Schoen
4 Kwalwasser-Ruch
5 Ortmann

163. The 'Liebestod' from Wagner's 'Tristan and Isolde' might find a cold or bored response in one individual while another might find it warming and stimulating. Which of these explanations seems most likely ?
1 One listener is musical and the other is not.
2 One listener favors operatic music and the other does not.
3 The music is long and drawn out.
4 Any musical composition is responded to in terms of past experience.
5 The rhythm is not sufficiently pronounced.

164. That part of the brain which acts as a relay station for all afferent traits including the auditory branch of the eighth cranial nerve, and passes these sensory impulses on to the cerebrum is the
1 cerebellum. 3 thalamus.
2 prefrontal lobe. 4 occipital lobe.
5 precentral gyrus.

165. An 'Iso' principle applied to the psychology of music means that the selection of music for the individual listener is based on
1 a desire to stimulate him rhythmically.
2 a desire to stimulate him through harmonic presentation.
3 a desire to match his present mood.
4 a desire to institute a 'calming' effect on the listener.
5 none of the above.

PART III: MUSIC HISTORY AND THEORY

A. The History of Music

166. The Gregorian Chant is often referred to as
1 Dorian Mode. 3 Hymn to Apollo.
2 Ambrosian Mode. 4 Doxology.
5 Plainsong.

167. Orpheus lost Eurydice by
1 neglecting to return suitable thanks to the gods.
2 neglecting her in order to follow the god of music.
3 being unfaithful to her.
4 showing his horror at her appearance as a member of the realm of the dead.
5 looking at her before they had emerged from the underworld.

168. The 'ethos' of ancient Greece referred to
1 the ethical relationship between musicians.
2 the influence of music on the will.
3 a system of transposition.
4 a particular type of wind instrument.
5 a practice of choral singing in the theater.

169. Which of the following instruments is characteristic of the civilization of ancient Greece?
1 Dulcimer 3 Kithara 5 Rebec
2 Harpsichord 4 Ophicleide

170. All but which one of the following are types of compositions used in 17th century dance suites ?
1 allemande 3 masque 5 sarabande
2 courante 4 gigue

171. The 'Habanera' would be thought of in connection with
1 Funiculi, Funiculi.
2 Liebestod.
3 Seguidilla.
4 Vesta La Giubba.
5 Largo al Factotum.

172. The D'Oyly Carte Opera Company would be most likely to present
1 Parsifal. 3 Don Giovanni.
2 The Messiah. 4 Il Trovatore.
5 The Mikado.

173. A play by Ibsen which is associated with musical composition is
1 The Master Builder.
2 The Doll's House.
3 Peer Gynt.
4 The Lady from the Sea.
5 Hunger.

174. Which of the composers listed below was not a creator of operatic music ?
1 Wagner 3 Mozart 5 Verdi
2 Beethoven 4 Chopin

175. Which composer wrote Lucia di Lammermorr and Don Pasquale ?
1 Bellini 3 Verdi 5 Leoncavallo
2 Donizetti 4 Rossini

176. An opera based on a work by Goethe was
1 Lohengrin. 3 Parsifal.
2 Faust. 4 Das Liebersverbot.
5 Götterdamerung.

177. Which composer wrote Rienzi and Parsifal ?
1 Wagner 3 Beethoven
2 Weber 4 Schumann 5 von Flotow

178. All but which one of these Russian composers is classed with 'The Five' ?
1 Moussorgsky 3 Rachmaninoff
2 Borodin 4 Cesar Cui
5 Rimsky-Korsakov

FOR EACH OF THE FOLLOWING STATEMENTS NAME THE COMPOSER WHO BEST FITS ALL OF THE QUALIFICATIONS:

179. This is an American composer who is known for his application of the jazz idiom to the serious field of writing.
1 Roy Harris 3 Paul Hindemith
2 Howard Hanson 4 Deems Taylor
5 George Gershwin

180. A contemporary composer of the 20th Century, his early works were in the post-Wagnerian style, showing the influence of Mahler. His twelve-tone system is typical of his tendency toward atonality.
1 Schonberg 3 R. Strauss
2 Hindemith 4 Delius 5 Bartok

181. A friend of Liszt and Schumann, his life is the story of compositions and concerts. His lovely songs are equalled only by his great Symphonies and other large orchestral works.
1 Schubert 3 Tschaikowsky
2 Saint-Saens 4 Brahms
5 Berlioz

182. He is famed for his genius, not only as an operatic writer, but as a librettist and a philosopher.
1 Borodin. 3 Wagner. 5 Lully.
2 Verdi. 4 Puccini.

183. Best known for his songs, he was also a composer of symphonic works and other instrumental pieces.
1 Donizetti 3 Franz 5 Masseret
2 Gounod 4 Schubert

184. At the age of eight, he was a choir boy in Vienna. Later he became director of music for Prinze Esterhazy of Hungary. Mozart and Beethoven were students of his.
1 Bach. 3 Haydn. 5 Verdi.
2 Handel. 4 Gluck

NAME THE OPERA DESCRIBED:

185. A leading character lists his accomplishments in a well known aria, 'Largo al Factotum'.
1 Aida 3 Der Freischutz
2 L'Africaine 4 Barber of Seville
5 Mignon

186. The heroine, who has been working in a cigarette factory, stabs another of the girls, and is placed in the custody of a soldier. After she induces him to let her escape, he himself is arrested and imprisoned.
1 Romeo and Juliet
2 Faust 4 Mignon
3 Louise 5 Carmen

187. This opera featured the well known story of Walther, his 'Prize Song' and the famed Hans Sachs.
1 Parsifal 3 Die Meistersinger
2 Lohengrin 4 Siegfried
5 Das Rheingold

188. This is the fourth of a series of great music dramas by Richard Wagner, dedicated to the exposition of a story of lust and greed for gold and its power. In it, Valhalla perishes in flames, as the Rheingold is returned to the Rhine Maidens.
1 Lohengrin 3 Götterdamerung
2 Parsifal 4 Siegfried
5 Das Rheingold

189. In this famed operatic work, the hero makes his initial appearance as a knight in shining armor, approaching in a boat, pulled by a swan.
1 Parsifal 3 Lohengrin
2 Il Trovatore 4 Die Walkure
5 Pagliacci

190. In this opera, a lady of rank and her friend disguise themselves in order to be hired by two young farmers, but they do it only as a joke and are dismayed to find that they are legally bound to serve their masters a year.
1 Martha 3 Thais
2 La Giocanda 4 The Bohemian Girl
5 The Daughter of the Regiment

191. The young hero is really the son of a ruler, and is travelling in disguise. His love for a young maiden is thwarted by her engagement to her own guardian, the chief executioner, who, in turn sees the hero only as a prospective victim.
1 Sweethearts 3 Rigoletto
2 The Mikado 4 HMS Pinafore
5 Pirates of Penzance

192. The prologue to this opera, sung by Tonio, reminds the audience that the players are of like flesh and blood with themselves, sharing their joys and sorrows, angers, jealousies, love and laughter.
1 Aida 3 Carmen
2 Pagliacci 4 Il Trovatore
5 The Masked Ball

193. This is one of the most famous of love stories, ending in tragedy. A knight assigned the duty of returning to his country the bride of its ruler, is tricked into drinking a love potion with this young maiden. Their resulting love, continuing even after her marriage to the king, eventually results in both their deaths.
1 Tales of Hoffman
2 Romeo and Juliet
3 Lucia di Lammermoor
4 Tristan and Isolde
5 Fidelio

B. Music theory, including conducting, Instrumentation and Scoring.

194. All of the tones of the scale are found in which of the following combinations of chords ?
1 I-II-IV 3 III-IV-V
2 III-IV-VI 4 II-VI-VII
5 I-III-V

195. When 'inverted', the Diminished Fifth becomes (a)(an)
1 minor third. 3 augmented fourth.
2 major second. 4 diminished sixth.
5 minor second.

196. The Harmonic Minor Scale is made up of the following intervals in sequence:
(1) 1 ½ 1 1 ½ 1½ ½ steps
(2) 1 ½ 1 1 ½ 1 1 steps
(3) 1 ½ 1 1 1 1 ½ steps
(4) 1 1 ½ 1 1 ½ 1 steps
(5) 1 1 ½ 1 1 1 ½ steps

197. Which of the following is operatic in form, but generally performed without the benefit of action, scenery or costumes ?
1 an operetta 3 an oratorio
2 a sonata 4 a motet
5 an overture

198. The round is a simple form of a
1 canon. 3 descant. 5 suite.
2 sonata. 4 gigue.

199. Polyphony is characterized particularly by its
1 vertical harmonization.
2 timbre.
3 relation to the dance.
4 linear voicing.
5 rhythmic form.

200. A cadenza is an important part of
1 a concerto. 3 an aria.
2 a suite. 4 a passacaglia.
5 a partita.

201. The following definition best describes which of the terms listed below: "the use of two different keys simultaneously in a composition".
1 Bithematic 3 Homophonic
2 Pentatonic 4 Bitonal 5 Polytonal

202. In 'Form and Analysis', the FIGURE is a larger unit in musical composition than the
1 period. 3 motive.
2 antecedent phrase. 4 movement.
5 consequent phrase.

203. All but one of which of the following are products of the dance ?
1 Chaconne 3 Sarabande
2 Suite 4 Gavotte 5 Concertino

204. The fingering of the Eb Alto Saxophone most closely resembles that of the
1 chalameau register of the Bb soprano clarinet.
2 bassoon.
3 flute.
4 C melody saxophone.
5 oboe

205. From the standpoint of fingering, transfer from the Bb cornet would be easiest made to the
1 bass clef baritone.
2 BBb bass.
3 Eb mellophone.
4 French horn in F.
5 Bb trombone.

206. Which of the following instruments is equally well suited for ensemble work in either the brass or woodwind group ?
1 Bass clarinet 4 Bb trombone
2 French horn 5 Bb Tenor sax
3 Bb cornet

207. Which instrumentalist needs the best sense of relative pitch ?
1 Bb cornetist 3 Tympanist
2 Bb clarinetist 4 Pianist
5 Flutist

208. The term 'con sordini' would most likely appear on the score of which part ?
1 Bb clarinet 3 Organ
2 Snare Drum 4 Viola
5 Bb baritone horn

209. All but which one of these terms indicate a decrease in the present tempo ?
1 rallentando 3 ritardando
2 piu mosso 4 ritenuto
5 piu lento

210. All but which one of these terms indicate an increase in the present tempo ?
1 accelerando 3 stringendo
2 affretando 4 allargando
5 poco animato

211. In reading an orchestral score, you would expect to find the four sections of the orchestra from top to bottom in this order:
1 WW, String, Brass, Percussion
2 String, WW, Brass, Percussion
3 WW, Brass, Percussion, String
4 Brass, WW, Percussion, String
5 Percussion, Brass, WW, String

212. Which is the fastest of the tempo markings listed below ?
1 moderato 3 allegretto
2 andantino 4 presto assai
5 allegro non troppo

(GO TO RIGHT HAND COLUMN NEXT)

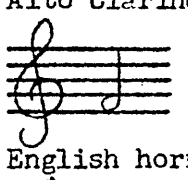
213. All but which one of these markings indicate a deviation from strict tempo ?
1 Tempo giusto 3 Ad libitum
2 Tempo rubato 4 A piacere
5 Agitato

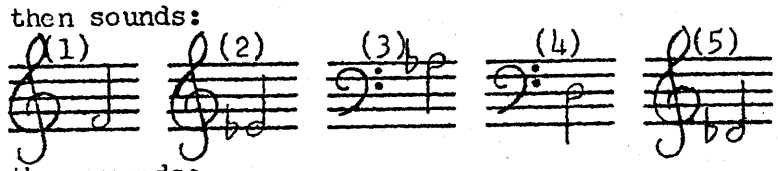
214. Which is the slowest of the tempo markings listed below ?
1 presto 3 larghetto
2 andantino 4 largo 5 adagietto

215. All but which one of the following are representative of the determination of correct tempo ?
1 metronome indication
2 markings such as andante, allegro
3 the text, in vocal music
4 the dynamics
5 tradition

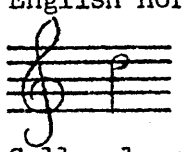
In each of the next three questions, a note is printed upon the staff. When fingered and played by the instrument named, which of the tones listed below is sounded in concert pitch ?

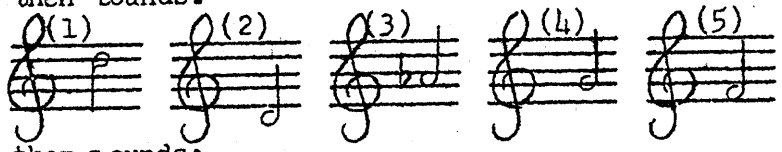
216. Alto Clarinet plays: It then sounds:



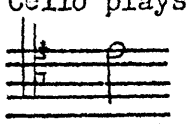


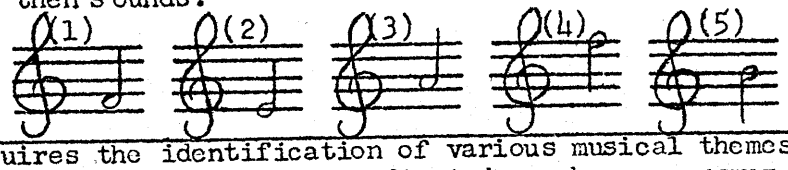
217. English horn plays: It then sounds:





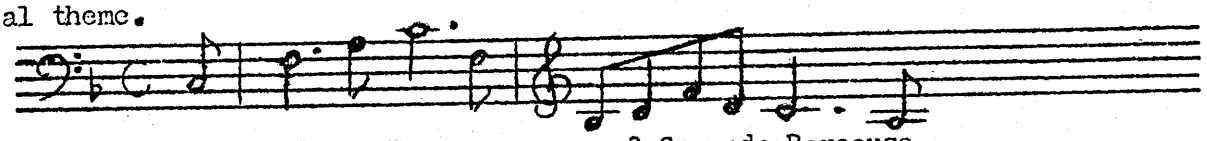
218. Cello plays: It then sounds:





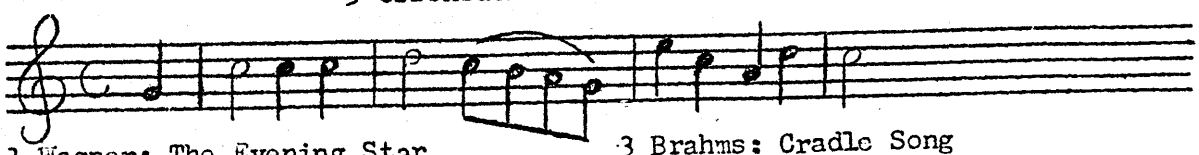
The next group of questions requires the identification of various musical themes, printed for each question. From the choice of titles indicated, mark your answer sheet with the number which corresponds to the correct title for that particular musical theme.

219.



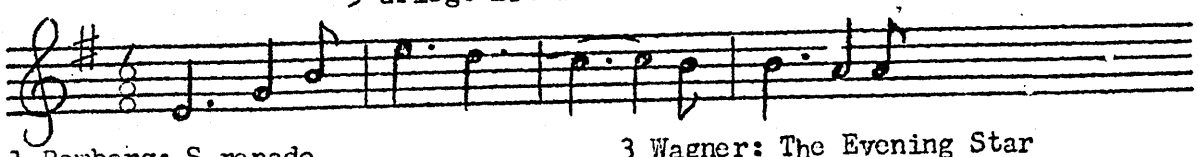
1 Schumann: The Happy Farmer
2 MacDowell: At Sunset
3 Gounod: Berceuse
4 Moszowski: Serenata
5 Offenbach: Tales of Hoffman

220.



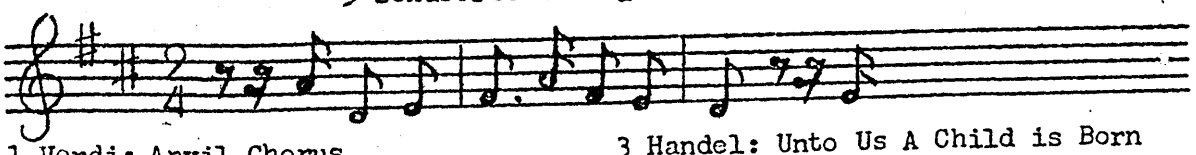
1 Wagner: The Evening Star
2 Handel: Unto Us A Child is Born
3 Brahms: Cradle Song
4 Haydn: The Heavens are Telling
5 Grieg: Erotik

221.



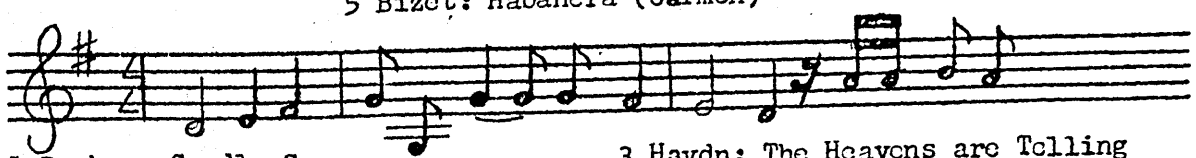
1 Romberg: Serenade
2 Beethoven: Egmont Overture
3 Wagner: The Evening Star
4 Bizet: Habanera (Carmen)
5 Schubert: Ave Maria

222.

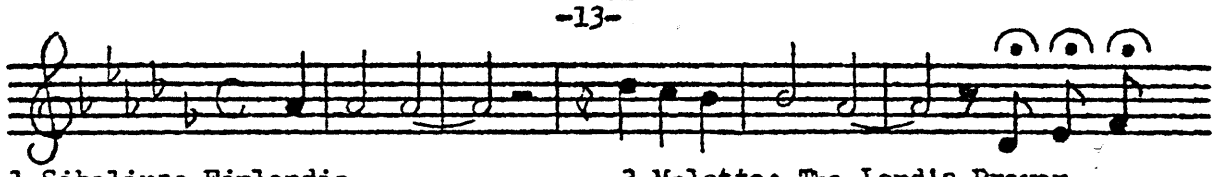


1 Verdi: Anvil Chorus
2 Sullivan: The Lost Chord
3 Handel: Unto Us A Child is Born
4 Brahms: Cradle Song
5 Bizet: Habanera (Carmen)

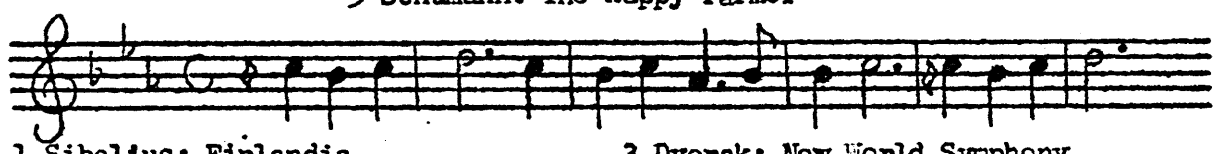
223.



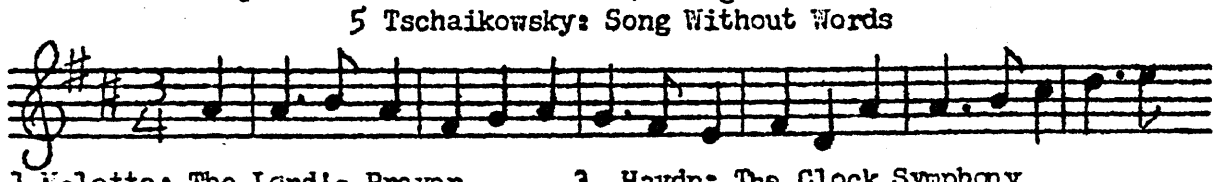
1 Brahms: Cradle Song
2 Handel: Hallelujah Chorus
3 Haydn: The Heavens are Telling
4 Thome: Andante Religioso
5 Warren: God of Our Fathers

224. 

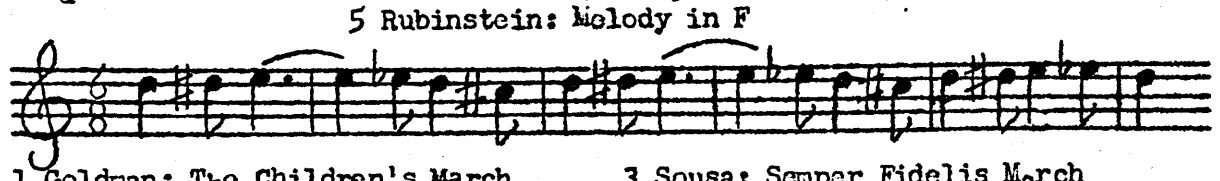
1 Sibelius: Finlandia
2 Wagner: Bridal Chorus(Lohengrin)
3 Malotte: The Lord's Prayer
4 Prayer of Thanksgiving
5 Schumann: The Happy Farmer

225. 

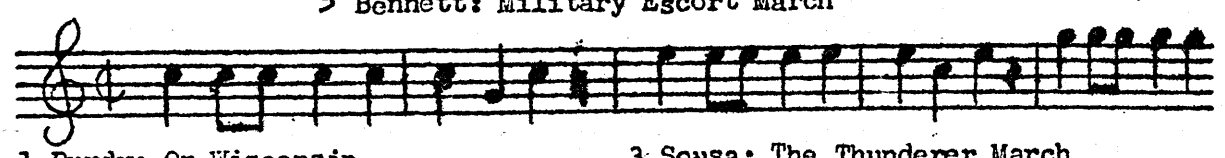
1 Sibelius: Finlandia
2 O Come All Ye Faithful
3 Dvorak: New World Symphony
4 Grieg: Ich Liebe Dich
5 Tschaikowsky: Song Without Words

226. 

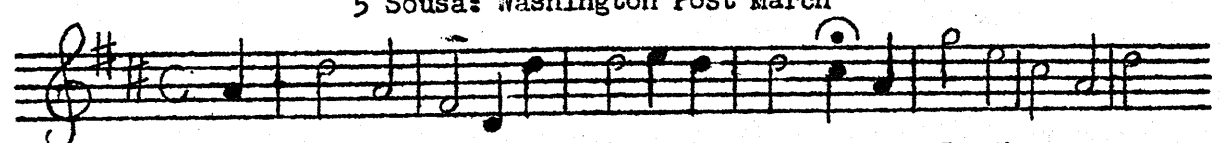
1 Malotte: The Lord's Prayer
2 Saint-Saens: The Swan
3 Haydn: The Clock Symphony
4 Prayer of Thanksgiving
5 Rubinstein: Melody in F

227. 

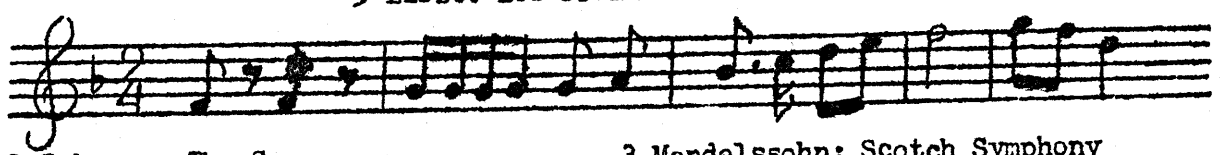
1 Goldman: The Children's March
2 Sousa: Washington Post March
3 Sousa: Semper Fidelis March
4 Elgar: Pomp and Circumstance
5 Bennett: Military Escort March

228. 

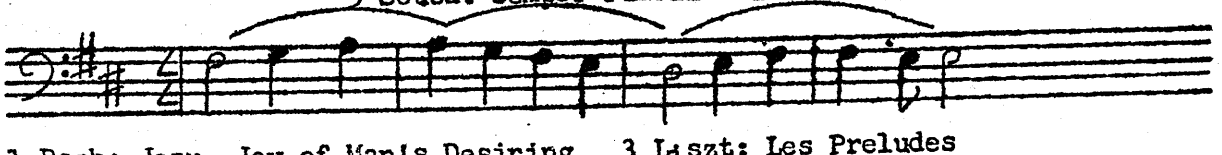
1 Purdy: On Wisconsin
2 Bennett: Military Escort March
3 Sousa: The Thunderer March
4 Fillmore: Men of Ohio March
5 Sousa: Washington Post March

229. 

1 Beethoven: The Heavens Resound
2 Herbert: Gypsy Love Song
3 Bach: Come, Sweet Death
4 Mozart: Jupiter Symphony
5 Liszt: Les Preludes

230. 

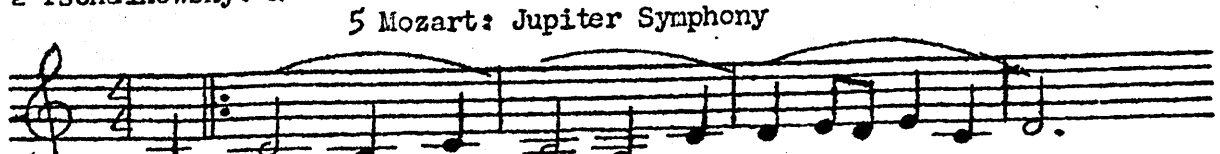
1 Debussy: The Sea
2 Liszt: Les Preludes
3 Mendelssohn: Scotch Symphony
4 Herbert: Italian Street Song
5 Sousa: Semper Fidelis March

231. 

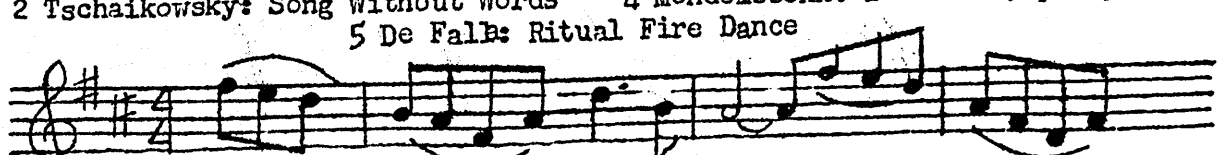
1 Bach: Jesu, Joy of Man's Desiring
2 Beethoven: Ninth Symphony(Finale)
3 Liszt: Les Preludes
4 Mendelssohn: Scotch Symphony
5 Mozart: Jupiter Symphony

232. 

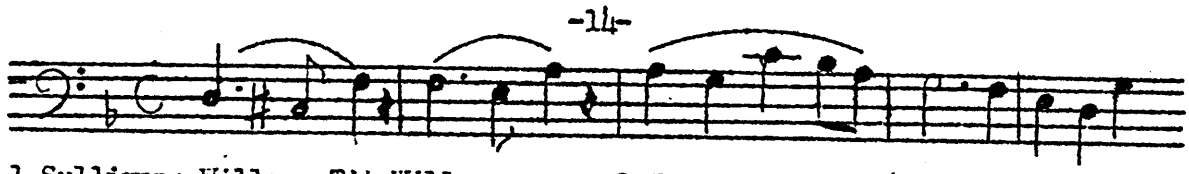
1 Schubert: Unfinished Symphony
2 Tschaikowsky: Romeo and Juliet
3 Handel: Water Music Suite
4 Mendelssohn: Scotch Symphony
5 Mozart: Jupiter Symphony

233. 

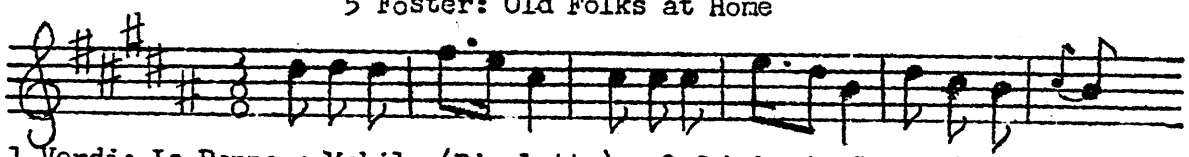
1 Brahms: First Symphony(4th movt)
2 Tschaikowsky: Song Without Words
3 Herbert: Gypsy Love Song
4 Mendelssohn: Italian Symphony
5 De Falla: Ritual Fire Dance

234. 

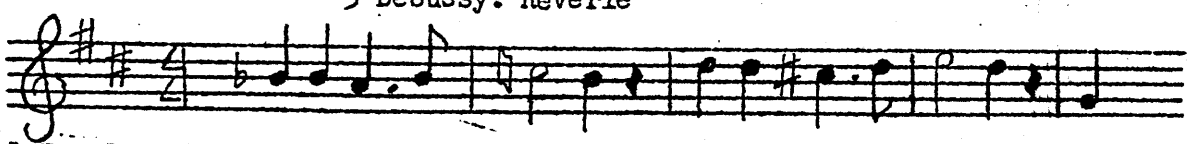
1 Tschaikowsky: Romeo and Juliet
2 Tschaikowsky: 6th symphony
3 Wagner: Siegfried's Idyll
4 Wagner: Ride of the Valkyries
5 Ponchielli: Dance of the Hours

235. 

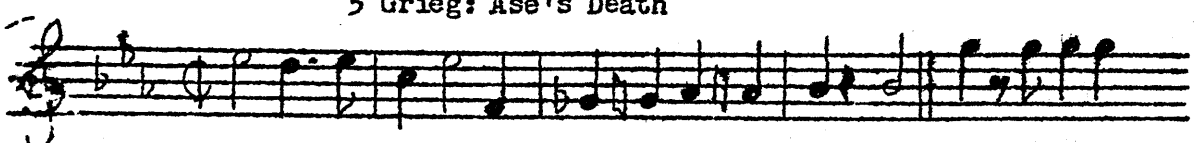
1 Sullivan: Willow, Tit Willow
2 Bach: Brandenburg Concerto
3 Wagner: Prelude(Die Meistersinger)
4 Cesar Franck: Symphony in D minor
5 Foster: Old Folks at Home

236. 

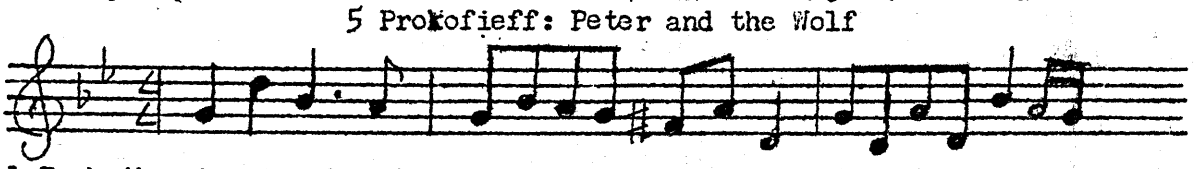
1 Verdi: La Donna e Mobile (Rigoletto)
2 Foster: Jeannie with the Light Brown Hair
3 Schubert: Serenade
4 Verdi: Celeste Aida
5 Debussy: Reverie

237. 

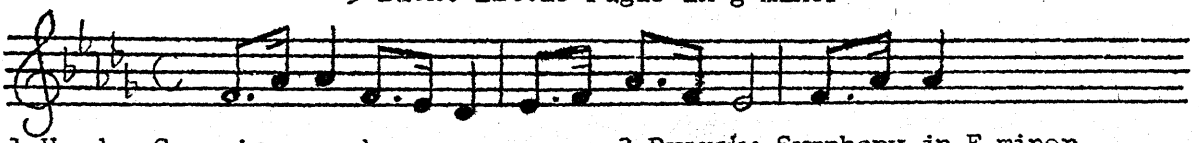
1 Ravel: Bolero
2 Lahar: Merry Widow Waltz
3 Ward : America, the Beautiful
4 Humperdinck: Prayer(Hansel and Gretel)
5 Grieg: Ase's Death

238. 

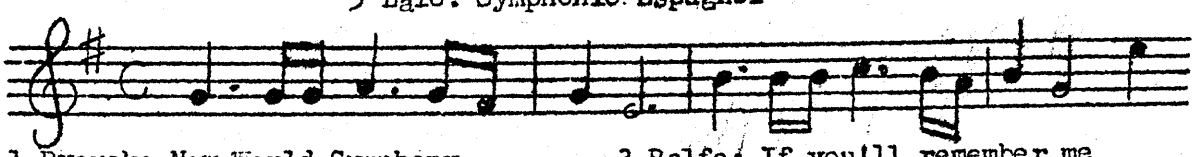
1 Sousa: Semper Fidelis March
2 Losey: March Gloria
3 Sousa: Stars and Stripes Forever
4 Fillmore: Men of Ohio March
5 Prokofieff: Peter and the Wolf

239. 

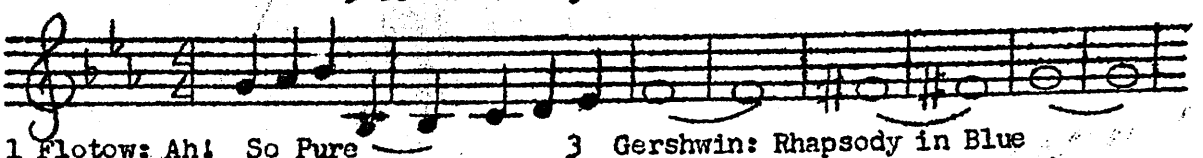
1 Tschaikowsky: Marche Slav
2 Beethoven: Eroica Symphony
3 Schumann: The Happy Farmer
4 Dukas: The Sorcerer's Apprentice
5 Bach: Little Fugue in g minor

240. 

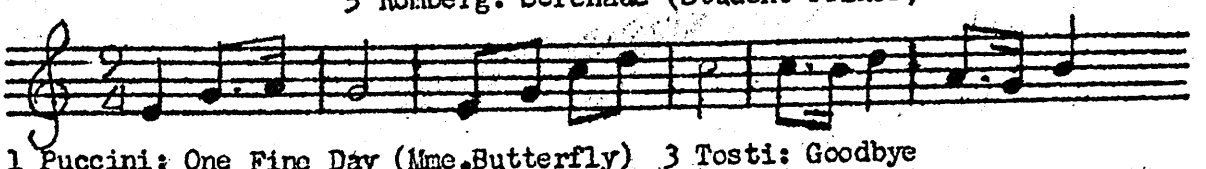
1 Haydn: Surprise symphony
2 Ravel: Daphnis & Chloe Suite #2
3 Dvorak: Symphony in E minor
4 Tschaikowsky: Symphony no. 5
5 Lalo: Symphonie Espagnol

241. 

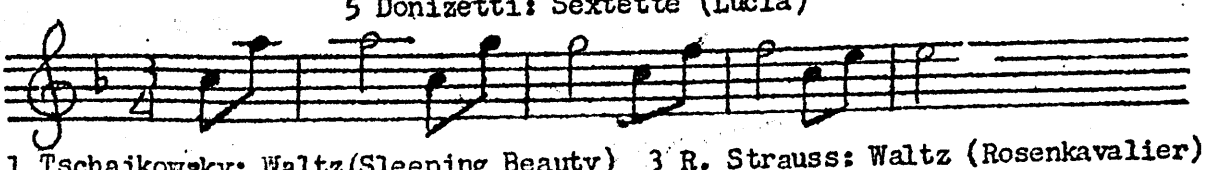
1 Dvorak: New World Symphony
2 Tschaikowsky: Fifth Symphony
3 Balfe: If you'll remember me
4 Puccini: One Fine Day (Mme. Butterfly)
5 Tosti: Goodbye

242. 

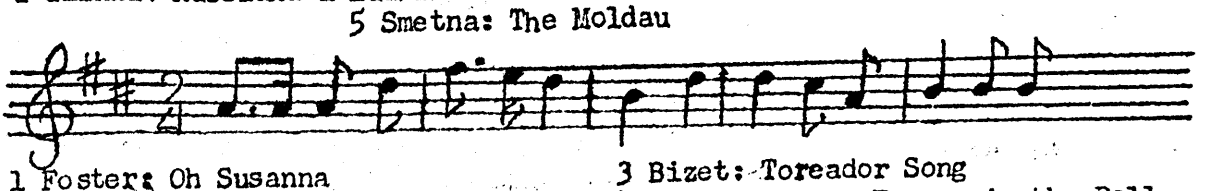
1 Flotow: Ah! So Pure
2 Humperdinck: Prayer(Hansel & Gretel)
3 Gershwin: Rhapsody in Blue
4 Herbert: Babes in Toyland
5 Romberg: Serenade (Student Prince)

243. 

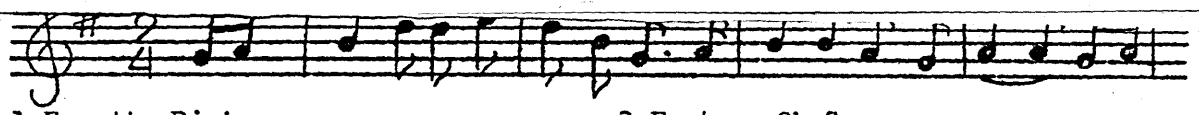
1 Puccini: One Fine Day (Mme.Butterfly)
2 Verdi: Celeste Aida
3 Tosti: Goodbye
4 Flotow: Ah! So Pure
5 Donizetti: Sextette (Lucia)

244. 

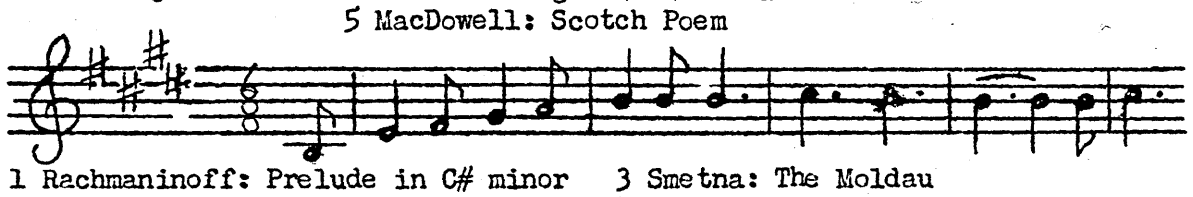
1 Tschaikowsky: Waltz(Sleeping Beauty)
2 Glinka: Russland & Ludmilla
3 R. Strauss: Waltz (Rosenkavalier)
4 Mendelssohn: Lift Thine Eyes
5 Smetna: The Moldau

245. 

1 Foster: Oh Susanna
2 RachmaninoffL 2nd piano concerto
3 Bizet: Toreador Song
4 English game: Farmer in the Dell
5 Mendelssohn: Lift Thine Eyes

246. 

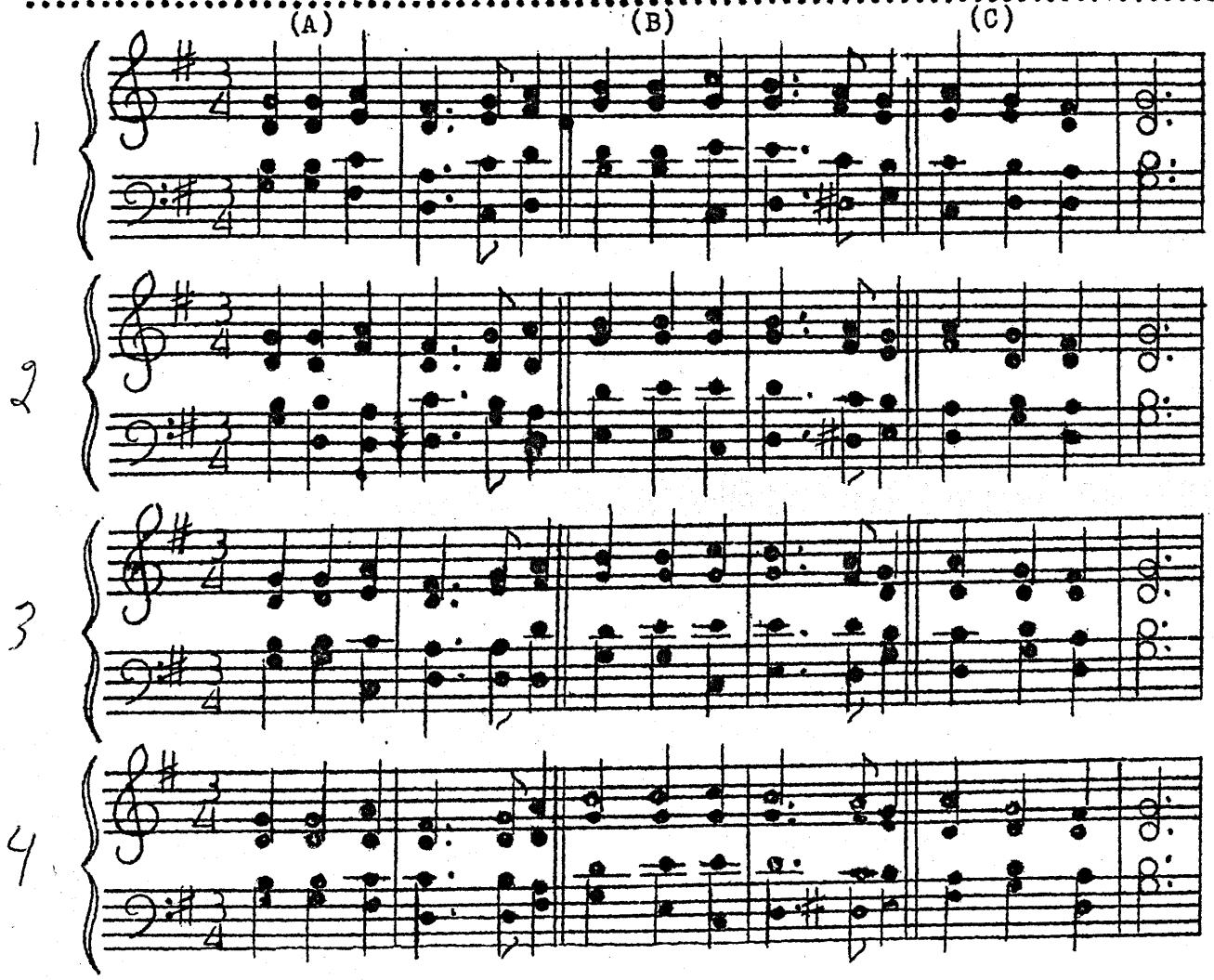
1 Emmett: Dixie
2 Woodbury: Stars of the Summer Night
3 Foster: Oh Susanna
4 Annie Laurie
5 MacDowell: Scotch Poem

247. 

1 Rachmaninoff: Prelude in C# minor
2 Tschaikowsky: Chanson Triste
3 Smetna: The Moldau
4 Bizet: Toreador Song
5 Round: Row, Row, Your Boat

BELOW ARE WRITTEN FOUR DIFFERENT harmonic versions of the first six measures of AMERICA. Each version is divided into two-measure groups, and they are lettered A, B, and C.
SELECT the correct pair of measures for A,B, and C and check the correct number (1,2,3 or 4 on the score sheet corresponding to the question that deals with that particular pair of measures:

248. Measure group (A)
249. Measure group (B)
250. Measure group (C)



Be sure to enter the time at which you complete this examination!

FINIS

APPENDIX C

Sample IBM Answer Form

SCORES

NAME _____ DATE _____ 1 _____ 5 _____ DATE OF BIRTH _____ AGE _____ SEX _____
LAST FIRST MIDDLE 2 _____ 6 _____ M OR F

SCHOOL _____ CITY _____ 3 _____ 7 _____ GRADE OR CLASS _____ INSTRUCTOR _____

1 _____ 2 _____ 4 _____ 8 _____ NAME OF TEST _____ PART _____

DIRECTIONS: Read each question and its numbered answers. When you have decided which answer is correct, blacken the corresponding space on this sheet with the special pencil. Make your mark as long as the pair of lines, and move the pencil point up and down firmly to make a heavy black line. If you change your mind, erase your first mark completely. Make no stray marks; they may count against you.

SAMPLE:
1. Chicago is
1—1 a country
1—2 a mountain
1—3 an island
1—4 a city
1—5 a state

1 2 3 4 5
1

BE SURE YOUR MARKS ARE HEAVY AND BLACK.
ERASE COMPLETELY ANY ANSWER YOU WISH TO CHANGE.

Printed by the International Business Machines Corporation, Endicott, N. Y., U. S. A.

IBM FORM I.T.S. 1100 B 107

Sample IBM Answer Form

BIBLIOGRAPHY

1. Adams, F. J., "Predicting High School and College Records from Elementary Test Data", JOURNAL OF EDUCATIONAL PSYCHOLOGY 29:56-60, 1938.
2. Asher, E. J. and Florence Grey, "Relation of Personal History Data to College Success", PSYCHOLOGICAL BULLETIN 36:618, 1939.
3. Ball, Lester B., "Should Merit Ratings Determine Salaries?" SCHOOL EXECUTIVE 67:no. 9, March 1948, pp. 46-48.
4. Berry, John R., "Who Goes to College?" EDUCATIONAL ADMINISTRATION AND SUPERVISION 25:25-36, 1939.
5. Bienstock, Sylvia A., "A Predictive Study of Musical Achievement", PEDAGOGICAL SEMINARY 61:135-145, 1942.
6. Bishop, Helen, "A Study of Freshmen Intelligence to Scholarship and to Mortality", KENTUCKY PERSONNEL BULLETIN, September 1938, p. 4.
7. Boardman, Charles W. and Dale Patterson, "Achievement Examinations as a Technique for Selecting Students in Education", SCHOOL AND SOCIETY 49:586-88, 1939.
8. Borow, Henry, "Current Problems in the Prediction of College Performance", JOURNAL OF AMERICAN COLLEGIATE REGISTRARS 22:14-26, 1946.
9. Bruce, Loraine, "A Study of the CAVD Intelligence Scale and its results on the Doctor's Level at Colorado State College of Education", JOURNAL OF EXPERIMENTAL EDUCATION 9:216-18, 1941.
10. Butsch, R. L. C., "Improving The Prediction of Academic Success Through Differential Weighting", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:401-20, 1939.
11. Callis, Robert and C. Gilbert Wrenn, "The GED Tests as Predictors of Scholastic Success", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 7:93-100, 1947.
12. Choyette, Irving, "Screening College Music Freshmen", EDUCATION 67:169-173, 1946.
13. Cohen, Leonard, "Predicting Academic Success in an Engineering College and Suggestions for an Objective Evaluation of High School Marks", JOURNAL OF EDUCATIONAL PSYCHOLOGY 37:381-384, 1946.
14. Cook, Walter W., "Predicting Success of Graduate Students in a College of Education", SCHOOL AND SOCIETY 56:192-195, 1942.
15. Corey, Stephen M. and George S. Berry, "The Effect of Teacher Popularity upon Attitude Toward School Subjects", JOURNAL OF EDUCATIONAL PSYCHOLOGY 29:665-70, 1938.
16. Crawford, Albert B. and Paul S. Burnham, FORECASTING COLLEGE ACHIEVEMENT Yale University Press, New Haven, 1946. pp. 118-123.
17. Davis, Hazel, "Factors Determining Teachers Salaries", SCHOOL EXECUTIVE 66:58-59, 1947.
18. Davis, Robert A., "Guidance of Graduate Students", JOURNAL OF HIGHER EDUCATION 9:365-70, 1938.
19. Dresse, Paul L., "Effect of High School on College Grades", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:612-17, 1939.

20. Dwyer, P. S., "The Use of Subcorrelations in Determining the Predictive Power of High School Grades", JOURNAL OF EDUCATIONAL PSYCHOLOGY 28:673-80, 1938.
21. Dwyer, P. S., "Some Suggestions Concerning the Relationship Existing Between Size of High School Attended and Success in College", JOURNAL OF EDUCATIONAL RESEARCH 32:271-81, 1938.
22. Dykema, Peter and Karl Gehrkens, THE TEACHING AND ADMINISTRATION OF HIGH SCHOOL MUSIC, C. C. Birchard and Co., Boston, 1941. p. 366.
23. Emerick, Lucille, "Predicting Success in Music Education for Adults", UNPUBLISHED THESIS, NEW YORK UNIVERSITY, 1938.
24. Eurich, Alvin C., "Youth in Colleges", THIRTY-EIGHTH YEARBOOK OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION, Part II, 1939, pp. 73-96.
25. Falls, J. D., "Research in Secondary Education", KENTUCKY SCHOOL JOURNAL 6:42-46, 1928.
26. Feinberg, Henry, "IQ Correlated with EQ", JOURNAL OF EDUCATIONAL PSYCHOLOGY 32:617-23, 1941.
27. Flanagan, J. C., "General Considerations in the Selection of Test Items and a Short Method of Estimating the Product-Moment Coefficient from the Tails of the Distribution", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:674-680, 1939.
28. Garrett, Wiley S., "The Ohio State Psychological Examination", OCCUPATIONS 22:489-495, 1944.
29. Gaston, E. Thayer, A TEST OF MUSICALITY, Streep Music Company, Kansas City, 1944.
30. Gilkey, Royal, "The Relation of Success in Certain Subjects in High School to Success in the Same Subjects in College", SCHOOL REVIEW 37:576-88.
31. Gooden, Herbert B., "Graduate Study: Courses, Yes! Degrees, Maybe!", CLEARING HOUSE 22:465-7, 1947-48.
32. Goodman, Charles H., "Prediction of College Success by Means of Thurston's Primary Abilities Tests", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 4:125-140. 1944.
33. Greene, E. B., MEASUREMENTS OF HUMAN BEHAVIOR, Odyssey Press, New York, 1941. p. 433.
34. Greene, Harry A. and Albert N. Jorgensen, THE USE AND INTERPRETATION OF HIGH SCHOOL TESTS, Longmans, Green and Co., New York, 1936. p. 3.
35. Hanna, Joseph V., "A Comparison of Cooperative Test Scores and High School Grades as Measures for Predicting Achievement in College", JOURNAL OF APPLIED PSYCHOLOGY 23:289-97, 1939.
36. Harris, Daniel, "Factors Affecting College Grades: a Review of the Literature, 1930-1937", PSYCHOLOGICAL BULLETIN 37:125-66. March, 1940.
37. Hartson, L. D., "Relative Vague of School Marks and Intelligence Tests as Bases for Rating Secondary Schools", SCHOOL AND SOCIETY 49:354-56, 1939.
38. Hepner, Walter R., "Factors Underlying Unpredicted Scholastic Achievement of College Freshmen", JOURNAL OF EXPERIMENTAL EDUCATION 7:158-188, 1939.

39. Hildreth, Gertrude, "Comparison of Early Binet Records with College Aptitude Scores", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:365-71, 1939.
40. Hurd, A. W., "Implications of a Brief Study of Prediction of Success in the Medical School, Medical College of Virginia", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 8:127, 1948.
41. Hurd, Archer Willis, "The Problem of the Prediction of College Success", JOURNAL OF EDUCATIONAL RESEARCH 38:217-219, 1944.
42. Jenkins, Leo W., "Master Teachers: a Program of Graduate Study", CLEARING HOUSE 23:no. 1, pp. 9-11. September, 1948.
43. Johnson, Robert L., "Should Everyone Go to College?" PROGRESSIVE EDUCATION 23:214-17, 1946.
44. Kandel, I. L., "The Ph. D. Degree", JOURNAL OF HIGHER EDUCATION 10:233-36, 1939.
45. Kelley, T. L., "The Selection of Upper and Lower Groups for the Validation of Test Items", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:17-24, 1939.
46. Keys, Noel, "The Value of Group Test IQ's for Prediction of Progress Beyond High School", JOURNAL OF EDUCATIONAL PSYCHOLOGY 31:81-93, 1940.
47. Kwalwasser, Jacob, TESTS AND MEASUREMENTS IN MUSIC, C. C. Birchard, Boston, 1927. p. 33.
48. Livesay, T. M., "Does Test Intelligence Increase at the College Level", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:63-68, 1939.
49. Maher, Thomas, "That No Foot Shall Slide", JOURNAL OF HIGHER EDUCATION 14:79-83, 1943.
50. Manning, Frank L., "How Accurately Can We Predict Success in College?", JOURNAL OF THE AMERICAN ASSOCIATION OF COLLEGIATE REGISTRARS 14:35-38, 1938.
51. Marshall, M. V., "What Intelligence Quotient is Necessary for Success?", JOURNAL OF HIGHER EDUCATION 14:99-100, 1943.
52. Martin, R., "Predicting Success in College", EDUCATION 62:52-58, 1941.
53. Mercer, Margaret, "Predictive Value of College Admissions Data", PSYCHOLOGICAL BULLETIN 36:547, 1939.
54. Meyer, Max, "The Grading of Students", SCIENCE 28:243-250, 1908.
55. Miller, Carl G., "Good Instruction, Good Salaries", EDUCATION 67:459, 1947.
56. Morgan, C. L. and C. C. Steinman, "An Evaluation of a Testing Program in Educational Psychology", JOURNAL OF EDUCATIONAL PSYCHOLOGY 34:495-502, 1943.
57. Morphet, Edgar L., "Florida Moves Ahead", SCHOOL AND SOCIETY 67:69-71, 1948.
58. Morphet, Edgar L., "State Responsibility for Salaries", SCHOOL EXECUTIVE 67:no.6, pp. 31-33, February, 1948.
59. Mursell, James L., PSYCHOLOGY OF MUSIC, W. W. Norton, New York, 1937. pp. 287-319.
60. Mursell, James L., PSYCHOLOGICAL TESTING, Longmans, Green and Co., New York, 1948, p. 235.
61. Nemzek, Claude L., "The Value of Certain Factors for Direct and Differential Prediction of Academic Success", JOURNAL OF EXPERIMENTAL EDUCATION 7:199-202, 1939.

62. Read, Cecil B., "The Relationship of Scholastic Averages in Various Semesters", SCHOOL AND SOCIETY 52:468-69, 1940.
63. Rigg, Melvin G., "The Relation of College Achievement Tests to Grades and to Intelligence", JOURNAL OF EDUCATIONAL PSYCHOLOGY 30:397-400.
64. Rogers, Herbert W., "The Reliability of College Grades", SCHOOL AND SOCIETY 45:758-760, 1937.
65. Ross, C. C. "Should Low-Ranking College Freshmen be Told Their Scores on Intelligence Tests", SCHOOL AND SOCIETY 47:678-80, 1938.
66. Ross, C. C., MEASUREMENT IN TODAY'S SCHOOLS, Prentice-Hall, Inc., New York, 1947. p. 24.
67. Sarbin, T. R. and E. S. Bordin, "New Criteria for Old", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 1:175-186.
68. Schmitz, Sylvester B., "Predicting Success in College: A Study of Various Criteria", JOURNAL OF EDUCATIONAL PSYCHOLOGY 28:465-75.
69. Schoen, Max, "School Music and Scientific Research", MTNA PROCEEDINGS, 1935. p. 53.
70. Seashore, Carl E., PSYCHOLOGY OF MUSIC, McGraw-Hill, New York, pp. 200-285.
71. Seashore, Carl E., "Three-Way Organization in the Graduate School", JOURNAL OF HIGHER EDUCATION 15:367-78, 1944.
72. Smith, Francis F., "The Use of Previous Record in Estimating College Success", JOURNAL OF EDUCATIONAL PSYCHOLOGY 36:167-176, 1945.
73. Spaulding, Francis T., "Teacher-Rating and Salaries", PHI DELTA KAPPAN 29:197-206, 1947.
74. Stanton, Hazel, "Measurement of Musical Talent, The Eastman Experiment", UNIVERSITY OF IOWA STUDIES, Iowa City, 1935.
75. Starch, Daniel and Edward Elliott, "Reliability of Grading Work in Mathematics", SCHOOL REVIEW, 21:254-259, 1913.
76. Starch, Daniel, "Reliability and Distribution of Grades", SCIENCE 38:630-636, 1913.
77. Stoke, Harold W., "The Future of Graduate Education", JOURNAL OF HIGHER EDUCATION 18:473-7, 1947.
78. Story, Robert C., "Earned Degrees Conferred by Institutions of Higher Education, 1947-48", HIGHER EDUCATION 5:79-80, 1948.
79. Stroud, J. B., PSYCHOLOGY IN EDUCATION, Longmans, Green and Co., New York, 1946, p. 338f.
80. Taylor, Elizabeth M., "A Study in the Prognosis of Musical Talent", JOURNAL OF EXPERIMENTAL EDUCATION 10:1-28, 1941.
81. Thorndike, Edward L., "The Nature, Purposes, and General Methods of Measurements of Educational Products", SEVENTEENTH YEARBOOK OF THE NATIONAL SOCIETY FOR THE STUDY OF EDUCATION, PART II, 1918. pp. 16-24.
82. Traxler, Arthur E., "Evaluation of Aptitude and Achievement in a Guidance Program", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 5:3-16.
83. Troyer, M. W., "An Attempt to Improve the Comprehensive Examination at the Master's Level", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 6:235-247, 1946.
84. Vasche, J. B., "$100 Doctors", CLEARING HOUSE 15:159-61, 1940.

85. Vaughan, K. W., "The Graduate Record Examination", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 7:745-56, 1947.

86. Walker, E. L. and T. W. Harrell, "Predictive Value of Certain Law Aptitude Tests", EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENTS 2:201-207, 1942.

87. Walters, Raymond, "Statistics of Attendance in American Universities and Colleges, 1946", SCHOOL AND SOCIETY 64:428-38, 1946.

88. Walters, Raymond, "Statistics of Attendance in American Universities and Colleges, 1947", SCHOOL AND SOCIETY 66:488-98, 1947.

89. Walters, Raymond, "GI Enrollments in Colleges and Universities", SCHOOL AND SOCIETY 68:317, 1948.

90. Walters, Raymond, "Statistics of Attendance in American Universities and Colleges, 1948", SCHOOL AND SOCIETY 68:419-430, 1948.

91. Weber, Janet and W. G. Brink and A. R. Gilliland, "Success in the Graduate School", JOURNAL OF HIGHER EDUCATION 13:19-24, 1942.

92. Wold, Ralph R., "Differential Forecasts of Achievement and Their Use in Educational Counseling", PSYCHOLOGICAL MONOGRAPHS 51:1-53, 1939.

93. _____, "The Record Rush to College", US NEWS, 23:Aug. 29, 1947, pp. 22-23.